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ITEMS OF INTEREST.

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Notes from the Profession.

Professional Ethics.

DR. JENNIE KOLLOCK HILTON.

WHEN a patient comes to us, having had work done by another dentist, we should be truthful in what we say, or say nothing. If there is a fault, and we are asked the nature of that fault, we should not withhold it to screen a fellow dentist. But it should be said in the kindest spirit, and in the mildest language; and if work has been well done, we should specially emphasize that fact, all the more if it was done by a sharp competitor. But to please anybody we should not attribute poor work to the poor structure of teeth, or to any other false cause. I protest against this dishonest course. While I believe in true politeness, and in being charitable to other dentists, we must be true to our patients. It is their right to have, and our duty to give them, our best service and our best judgment.

Patients have come to me with faces swollen and painful from ulcerations on teeth, and on removing large metal fillings, I have found nerves had been devitalized but not removed. In others, fillings had been put in on a live nerve, even without capping. I have seen canals filled with strings of cotton, whose odor, on removal, was an abomination. Once, on extracting a tooth that would not yield to treatment, I found a good-sized bunch of oxyphosphate attached to the end of the root, caused by careless manipulation. I have found loosened fillings, tho inserted but a few weeks previously, beneath which were quantities of decayed dentine, and around the edges frail enamel, which, of course, accounted for failure. Again, I have seen teeth of adults destroyed by being bridged together with amalgam instead of being filled separately, and only held in place by being wedged in between the teeth. I often find gold fillings protruding from teeth like knots on a tree, thus giving the frisky microbe a chance for games of hide and seek around them.

A lady, aged about sixty, from a distant town, said to me, recently, "Will you examine my teeth and tell me if it's possible to have permanent fillings inserted? The dentist who has always attended to my teeth is first-class, and I would not go to any other, but for the fact that during the last six years I have been trying to get him to insert permanent fillings in my front teeth; but he insists that they are too soft, and will not hold anything but bone fillings. I have to get them refilled so frequently I am getting tired of it."

After examining them, I told her I saw no reason why her teeth might not be filled with gold; for, on drilling, I found them as hard as teeth are usually. I filled six cavities greatly to her satisfaction, and, had I been a warranting dentist, I could have warranted them to last her natural life-time. Another lady, from the East, came to me in great distress, saying she had visited her dentist every day for weeks to have an aching tooth treated, but the pain would not subside. The tooth was an upper molar, with a large gold filling. A very small opening had been bored in the back part, into the pulp chamber, through which the dentist had been thrusting small wads of cotton saturated with carbolic acid. On removing the large filling, I found the nerve alive; but before getting at it, I had to remove three large pulp

stones. Her dentist, in jamming in the wads of cotton, had crowded these stones against the live nerve. The same lady brought her eight-year old boy to me, saying, "Perhaps you, being a woman, can persuade my boy to allow you to extract a tooth, which my dentist says must be extracted right away to prevent a deformity; so I have offered him a five-dollar gold-piece, if he will have it extracted." The tooth was a large, sound, lower temporary cuspid, in nearly normal position, the arch being only slightly crowded. I said, "Your boy's strong will has saved to him a valuable tooth. It would have been malpractice, indeed, to have removed it."

A lady came to us recently with a misfit lower plate. She said, "Oh, if the dentist had only let me keep my lower teeth. I had eight sound, beautiful lower front teeth, and I wanted to keep them and have a partial lower set made; but he said he could not make a partial set that would be useful or look well, and so all my good teeth were sacrificed." I could multiply such cases; but these will suffice.

And what shall we say to all these deluded and afflicted patients, whose teeth, or lack of teeth, give evidence of the worst malpractice? Shall we, in the face of all this evidence, defend the dentists who have produced them?

Shock, in Relation to Dental Operations.

DR. JAMES TRUMAN, D. D. S.

(Read before the Odontological Society of Pa.)

IT is well-known that death may come to the individual, and no trace of antecedent injury be manifest. Depression to the general circulating system may be apparent, and the medical attendant be wholly at a loss to define the cause. Mental emotion may produce changes at once rapid in its effects, and leaving results of a character that time may scarcely efface. The true definition of shock may be termed a "sudden depression of the vital powers resulting from an injury, or an impression made on the nervous system, or by fright; sudden and overpowering mental emotion." (Black.) While death may result from such a depression of vital powers, this extreme result is by no means always the case; but that the changed condition of the circulation may lead up to grave symptoms is clear, when it is understood that the delayed phenomena may be more serious than would be suggested at the earlier and more active stage of the shock.

To judge of the subject intelligently, the origin of collapse will be considered as briefly as may be consistent with the importance of the subject. Shock, or collapse, must be regarded as arising from an altered condition of the circulation produced by direct or reflex action on the nerve-centres, and without leaving any evidences of "change in the tissues; but, while this is unquestionably the case in some instances, there may be in others post-mortem evidences of morbid effects. The view that shock is always dependent on an altered state of the nerves has been combatted, and Jordan has shown that potassium cyanide, by acting directly on the cardiac muscular fibre, and by impairing its contractility, gives rise to those numerous secondary effects of shock which depend on an arrested or imperfect supply of arterial blood." The condition of knowledge in regard to the action of the vaso-motor system of nerves is, perhaps, too imperfect to assign positive reasons or to argue the question absolutely from facts. Sufficient is known, however, to form a basis of reasonable inference for much of the phenomena observed. These so certainly point to nerve influence on circulation that the conclusion is inevitable—that the impulse proceeds from a centre of nerve action, and the circulation is changed by a direct loss of tone in the vessels.

The generally recognized view now is that the circulation is affected by direct irritation and by reflex action, and that "special vaso-motor nerve-centres exist for the various vascular provinces." (Wagner.) "Section of a vascular nerve will produce, therefore, a flow of blood to the parts to which it is distributed; that excitation by the interrupted current, or by mechanical means, produces constriction of the

minute arteries; that excitation of a sensory nerve produces increased activity of the capillary circulation." (Simon.) The heart will continue to act after the removal of the nerve-centres, and hence is not directly dependent on these, and yet it is clear that mental emotions have a direct and powerful influence on this organ sufficient, in many cases, to produce death. True shock, as defined by some writers, must be limited to its "immediate production," while others attempt to classify it as "transitory, delayed, protracted, and insidious."

In the slighter degrees of collapse, the patient may present no marked symptoms, makes no complaint, and experiences no pain. The extremities are cold, face exhibiting a pinched expression. From this it may pass to the extreme form, with pallor on the surface, lips pale and bloodless, motionless, cold over the body, hardly perceptible pulse, great weakness, oppression, dizziness, nausea, confused perceptions, and respiratory movements feeble. These symptoms are not always confined to severe cases of physical injury, or to excessive mental emotion; but may be manifest after most trivial injuries, the effect being out of all proportion to the cause.

The relation which the phenomena of shock bear to dental operations may not be clear to the average observer; but to my mind they embody much subject for serious thought, and ought to lead to a clearer apprehension of our duty as practitioners.

While the evidence is very far from absolute that the conditions we are familiar with are dependent for a solution on shock, yet they are so closely allied to the phenomena that one is naturally drawn to inferences and suggestions. It is unnecessary, to confine our observations to the extreme cases of collapse, for the symptoms will be variable. The mental emotion caused by the sudden loss of near and dear friends may not amount to shock in the extreme sense; but who has not observed the long periods of weakness, the lack of mental force, the general loss of tone in the circulation, which may take months, and even years, to recover from? Whether this be ascribed to continued shock or to other pathological sequences, it certainly had its origin in a deep impression made on the nervous system, and, consequently, in a loss of controlling power. My observations and conclusions lead me to the opinion that these phenomena must be ascribed to a modified form of collapse. The mental strain produced in times of great public excitement—the effect on a merchant who has ended a carefully ordered life with failure in business—the rapid decline of those who have commanded large bodies of men in war through many battles, most noticeable since the Rebellion—these all showing a nervous strain and producing symptoms and lesions which must be ascribed to the insidious working of nerve influence.

It seems to me impossible to avoid the conclusion that many serious conditions, now unexplained, must be attributed to this cause; at least, many more than are now generally recognized. What is weariness but a similar effect? We call it shock when the impression is a powerful one; but is not this only a form of insidious impression, an action on the nerve-centres in response to peripheral sensations? Make this an over-strain, and, if repeated and repeated, the tone of the vessels is lost altogether, and the individual succumbs. This may not be collapse in a scientific view; but is certainly an approach, and closely allied to it in the broader sense that the greater includes the less, and cannot be explained intelligently in any other way.

To apply these thoughts to dental operations and dental operators is a natural sequence. Dr. Black, in "The System of Dentistry," has made most of these facts familiar to you, and his views on the overtaking of patients should be carefully read and pondered. He illustrates the importance of attending to this by a case in his own practice, and, as this bears directly on the subject, I quote it in full:

"A young lady of eighteen came from a distance by appointment to have carious teeth filled. On examination it was found there were two exposed pulps, besides other smaller cavities. Both the young lady and her parents insisted that

all should be done that day if it were possible. The operations were proceeded with, and everything without a murmur. My patient was a fine specimen of physical development, and I soon found she prided herself on her powers of endurance. The pulps were, at her urgent request, removed directly with the broach, and the filling proceeded with. After three hours of continuous operation, the patient was discharged for two hours' rest. She returned promptly, but something in her appearance arrested my attention as not being just right; yet, in answer to questions, she said she felt perfectly well, only a little tired. The operations were resumed, and all went well at first; but after an hour, the latter part of which had been occupied in the excavation of a very sensitive cavity, I found the pulse had become very compressible, and other evidences of shock were becoming apparent. Gutta-percha fillings were placed in the cavities excavated, and operations suspended. I found it necessary to assist her to a couch. After two hours in the recumbent posture she seemed better, and was taken to the train by her parents, and I saw her no more. I afterward learned from her mother that her condition became much worse *en route* home, and that for four or five days she was in a "stupid condition," and after this she passed into a nervous fever, which continued for several months. Up to the time I last heard from her, four years after the incident, she had been an invalid."

We all know of cases, and by no means infrequent, of persons exhibiting great weakness and depression after prolonged dental operations. Indeed, so common has this been with me, that for years I have been unwilling to extend the sitting over two hours, and then to insist on an intermission of several days. We, as dentists, interested in the operation at hand, can scarcely realize the nervous tension to which our patients are subjected. This mental and physical strain is sure to produce a condition of collapse, modified in extent tho it may be, still, by constant repetition, may produce results of a grave character. The very long operations of from six to seven hours are, it is hoped, passed by. The craze for enormous gold operations has not only in the past depleted the purses of our patients, but has had equally injurious results on the circulatory system. While such operations may truthfully be defended on the score of value to the teeth, they cannot be recommended in view of the possibility of permanent injury to the individual.

Surgical shock may meet us directly in cases of extraction. The shortness of this operation may lead some to regard it as of little moment; but there is probably no operation that the average mind will not more calmly consider than this. A few favored individuals, blessed with very "strong nerves," can sit down and have a tooth out with a nonchalance surprising; but these are exceptional. With most of us it is a great mental strain in advance, and a great shock during the operation, and the consequent depression is fully in accord with what we know of the phenomena accompanying more important surgical cases. It has been too much the custom in the past to remove teeth as long as the "patient will stand it;" or, in other words, till the sufferer refuses longer to allow the forceps to enter the mouth. Hence, it is not unusual for persons to have many teeth removed at one sitting, and dentists have been known to pride themselves on their agility in handling many teeth in a given time. If my views be considered as having any force, are not such operators sometimes guilty of malpractice? They certainly have taken risks that may reach beyond the limits of endurance, and, should untoward results follow, they are to blame. I presume all will recall cases, in their ignorance—and we have all been ignorantly guilty in this—where, after many extractions, the patient has been confined to the bed for days with all the symptoms I have detailed. It was from such experiences that I was led in years past to refuse to extract more than six teeth at one sitting. This I regard as the only safe practice, from this point of view as well as from that other, more remote, liability to hemorrhage. In these minor surgical operations we are not justified in jeopardizing the health and nervous energy of our patients. Caution is justifiable prudence.

Campho-Phenique.

J. W. DOWNEY, M.D., STATE CENTRE, IOWA.

CAMPHO-PHENIQUE is a germicide and antiseptic, or nothing, therapeutically considered; and discussing its properties necessarily opens the entire subject of germicides and antiseptics, a subject fraught with peril to the writer or speaker, especially if he is not a practical chemist, pathologist, and microscopist.

Nothing in pathology is better established than the fact, that microscopic germs cause disease, and no point in therapeutics is better known than the fact that a few drugs will, within the limit of safety, destroy these germs, and thus most effectually cure or prevent disease.

In deciding which germicide or antiseptic to use, the dentist should inquire, 1st, which is the most effectual? 2d, which is the safest? 3d, which is the most agreeable to the patient? To answer the first question we must inquire of the experimenter. Dr. Frank L. James, editor of the *St. Louis Medical and Surgical Journal*, a pathologist and microscopist of large experience, has determined by a series of over eighty cultures carried on during the summer time, covering a period of two months, that campho-phenique, pure, is equal to 1 to 85 of bichloride of mercury, which is six times as strong as it can be used, even on the unbroken skin, and about 25 times as strong as is considered safe on cut surfaces.

I have purposely omitted comparison with other drugs of this class, as the bichloride was by far the most effectual of any in general use before the introduction of campho-phenique.

If these figures are correct, they answer the first question. Certainly, if campho-phenique is from 6 to 25 times as effectual as a safe solution of bichloride of mercury, then it should have the preference in all cases where it is applicable. To the second point, which is the safest germicide, we all should be competent witnesses. The mercuric bichloride is known to be a virulent poison, and, therefore, ranks lowest in this respect, with carbolic acid closely following it. Campho-phenique is absolutely free from toxic or caustic properties. Applied to the unbroken skin it produces no sensation whatever. On cut surfaces there is a slight burning sensation when first applied, followed by anesthesia.

Being non-poisonous, non-irritant, campho-phenique ranks first as a safe germicide.

Now, to the third point, which is most agreeable. The brassy metallic taste of the bichloride is intolerable, the taste and smell of carbolic acid and creosote are disagreeable to most people, and the odor and meagre antiseptic properties of iodoform should banish it from the operating-room. Campho-phenique has a pleasant odor and agreeable taste; this should establish its claim as the most agreeable germicide. I have yet to hear the first patient complain of its odor or taste.

From the foregoing data I am led to conclude:

1st. That when used pure and undiluted, campho-phenique is one of the most efficient and reliable germicides and antiseptics.

2d. Being non-poisonous and non-irritant, it is perfectly safe.

3d. It is the most agreeable to the patient of any drug of its class.

I am glad to know that I am not alone in these conclusions. Prof. J. Foster Flagg, writing on this subject in the July number of the *Cosmos*, said, "When it is known that it is a notable germicide, an efficient antiseptic, a non-irritant, a decided local anesthetic, non-poisonous, insoluble in water or glycerin, does not discolor or stain, is possessed of an agreeable odor, and no disagreeable taste, and maintaining an unchanged integrity, it will at once be recognized as wonderfully adapted to a large proportion of dento-pathological conditions, from sensitivity of dentine through the varying conditions of pulp irritation, pulp devitalization, pericemental irritation, alveolar abscess, and caries and necrosis of contiguous osseous structures, and that thus it must rank as one of the most, if not the most, valuable polychrest which dentistry possesses."

It seems to me, this endorsement from a teacher and author of such acknowledged ability as Dr. Flagg, ought to place campho-phenique in the armamentarium of every dentist in the land. And now a word on its special uses, and I am through.

First and foremost as a pulp canal dressing in the various pathological conditions, from recent devitalization to alveolar abscess. Here it will take the place of corrosive sublimate, carbolic acid, creosote, oil of cloves, iodoform, or any germicide heretofore used, except peroxide of hydrogen. If thoroughly rubbed on the gum, or injected with a hypodermic syringe, it acts efficiently as a local anesthetic, not equal, however, to cocaine; but there are no constitutional effects following its use, and there is no danger of the tissues sloughing. It is quite efficient as an obtunder of sensitive dentine.

The very disagreeable ache which sometimes follows the extraction of abscessed teeth is almost instantly relieved by placing a pledget of absorbent cotton, saturated with campho-phenique, deep in the painful socket.

These are a few of the chief uses to which this new candidate for favor can be applied; others will suggest themselves to each practitioner. Before closing I want to mention its use for a condition which is not in the realm of dental pathology, but which is a source of annoyance to every dentist who uses plaster and hard water. I refer to the condition generally known as chapt hands. It is one of the numerous forms of eczema, and is greatly relieved by campho-phenique. I use the following formula:

R.—Campho-phenique.....	
Oil of cade.....	aa 5j
Rose cosmoline.....	5j
M. Sig.—Apply frequently.	

Campho-phenique should never be mixed with water or glycerine. It will mix in all proportions with alcohol, ether, chloroform, and all fatty substances. In dentistry it will seldom be necessary to dilute it at all. Gentlemen, give it a trial, and when you have weighed it in the balance of experience and found it wanting, we will assist you in writing its fate on the wall.—*Archives*.

The Low Crowns Nos. 2, 3, and 4; their Advantages and How to Adjust Them.

DR. J. E. LOW, CHICAGO.

IT is sometimes difficult to draw the line between crowning and extracting. The question should be, Can I properly treat and preserve this tooth? The increased demand for proper appliances for crown work shows its increasing popularity. It is gratifying to know my efforts in introducing crown and bridge-work has greatly reduced the number of teeth extracted, and the time is not far distant when the dentists who cannot properly treat diseased teeth, and restore them with artificial crowns, and supply all vacancies where indicated, with bridge teeth, will be obliged to take a back seat, as the public is rapidly becoming aware of their benefits.

Practical demonstrations are so common that no argument is needed now to show the difference between restoring broken-down teeth with crowns, and supplying all intermediate spaces with teeth without plate, as compared with old methods.

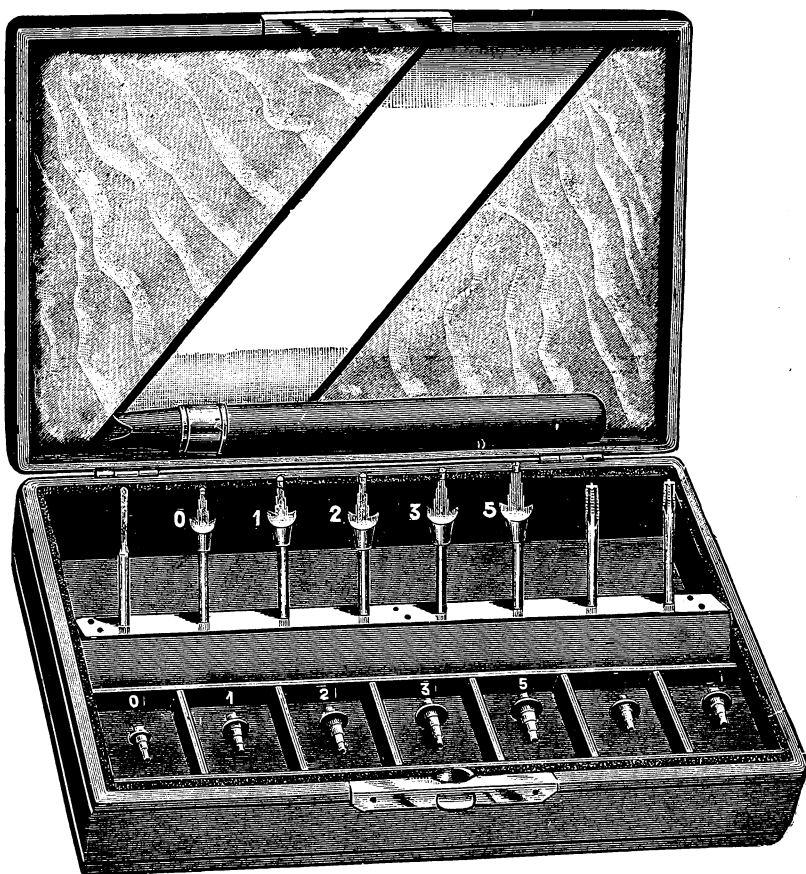
The main consideration that seems to present itself to the practitioners is that the masses are not able to pay for such an operation, consequently, the teeth are extracted, and a poor substitute is made, to the dissatisfaction of the dentist and the disgust of the wearers, as compared with the natural teeth.

The Low Crown No. 2, originated with the idea in view of being able to put a crown on the market that would enable every dentist to supply his patrons with artificial crowns instead of being obliged to extract the teeth.

The advantages claimed for this crown over other cheap crowns, is that the root is thoroughly protected against further decay. Should the porcelain become broken, the root is not interfered with, and a porcelain crown can be replaced on the same attachment at a small expense; whereas, all other cheap crowns when the porcelain is broken, the whole operation must be done over.

The crown does not depend on the cement alone for its attachment to the root, like other cheap crowns, as it is held in position, not only by its perfect mechanical fit, but it is also screwed into position, the cement only being used to form a union, giving more strength and preventing any possible decay, as a perfectly fitted convex cap covers the root, preventing the cement from being interfered with by the secretions.

I have adopted for this Crown No. 2, aluminum step-plugs. My experience with this metal has proved that it is strong, durable and non-corrosive, when not brought into contact with other metals. These step-plugs, when used for single crowns, are protected from the secretions of the mouth by the porcelain crown. This will also prevent any galvanic action, should there be fillings of any kind in the mouth.



No. 1.

This aluminum plug is selected on account of its cheapness, and it answers admirably. For all ordinary single crowns the porcelain crown will be found sufficiently strong and durable. As a set of instruments is needed to adjust the Low Crown No. 2, similar to No. 1, I will here describe the change made. Cut No. 1 represents a set of Low Crown Instruments No. 2.

In setting this crown the root is cut or ground even with the gums, as seen in No. 2.

The drill is next used. Drill the depth you desire the cutting instrument to cut, then select the instrument according to the size of the root to be operated on, the same as with Low Crown No. 1. After the root is cut up with the instrument, the tap for cutting the root to receive the screw-cut step-plug is used, as seen in cut No. 3.

The screw cutting must be done gently, by turning backward and forward. First use the small tap; then the large one, with all numbers except No. 0. This can be cut with the small tap only. Do not use much force, or the thread will be destroyed by cutting it all into one, so that the step-plug will not draw up into place. Should you, by accident, destroy the thread, use the cutter again, cutting a little deeper; then with tap cut a new thread.



No. 2.



No. 4.

Cut No. 4 represents a sectional view of root screw-cut ready to receive the step-plug.



No. 5.

Cut No. 5 represents the step-plug ready for adjustment.



No. 6.

Cut No. 6 shows a sectional view of the root after adjustment. After we have the step-plug well turned to its place, it is then removed, cavity dried, the step-plug moistened with cement and turned to place with the pin instrument, as seen in cut No. 7. The cement should be kept dry till it is thoroughly hardened. And the phosphate used should be fresh, especially the liquid. Much bad work is made by depending on cement

two or three months old. Fresh fluid makes strong cement. We are now ready to select our tooth, which is ground and fitted as desired. Where it is necessary to make any change in position, it can be made by grinding the side you wish to

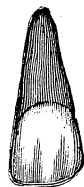


No. 3.

lower. After fitting the crown, cement, the consistency of a thick paste, is placed in the porcelain crown nearly full, allowing a little for the step-plug; then with the roter press to place, and tap gently with mallet, and keep dry till thoroughly hard, and you will be surprised at the amount of strength and durability it has.

No pains or expense has been spared in getting up molds for these porcelain tooth crowns.

A large stock, of various sizes and shades, will be kept on hand at all times. Cut No. 8 shows the crown complete.



No. 8.

LOW CROWN NO. 3.

The pure platina step-plug, screw-cut, same as the aluminum for putting up bridge-work on single crowns, can be used, should the operator desire to have a metal backing to the crown, and, at the same time, avail himself of the advantage of screwing the step-plug permanently into the root. In making a crown of this kind, which I will designate as crown No. 3, it is necessary to use a platina cap, as seen in cut No 1, which fits the end of the step-plug, and when cemented, the adaptation of the two metals together renders it impossible for the cement to be interfered with by the action of the secretions. This crown is used when it is desirable to have a metal backing, either to attach a bridge to or on account of peculiar articulation.



No. 1.



No. 2.



No. 3.

Cut No. 2 represents a root where screw-cut platina step-plugs are used in connection with platina caps. The process for making this crown is similar to making crown No. 1, with the exception that the step-plug is screwed into position as crown No. 2, after which the platina cap is placed over the end of the step-plug, as seen in cut No. 3.

The tooth is ground and fitted to this cap instead of the step-plug. Grind with small cone-shaped corundum stone till you obtain the desired position. Cover the entire surface with thin platina, the thinner the better.

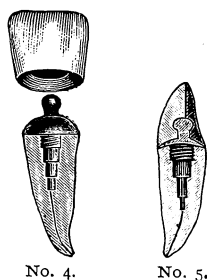
Use 28 thick platina standard gage for a backing over the thin platina down just below the pins, so as not to interfere with the position of the platina cap.

Burnish backing close to the tooth, and file over-lapping platina as with crown No. 1. You are now ready to arrange the tooth. Place the tooth in the position you desire and hold with a small piece of wax. Press the wax close around the platina cap, gently remove the wax and tooth, after which you remove the platina cap, and carefully place it in the same position it formerly occupied. Then, with a heated spatula, stick the platina and wax together, filling all the points where you wish gold to flow, otherwise, when you pour the plaster and sand, it will run into the spaces, and prevent your getting a perfect crown. Pour with plaster and sand, remove wax and flow up with coin gold, and we have the tooth as seen in cut No. 4, ready to adjust to the step-plug.



No. 7.

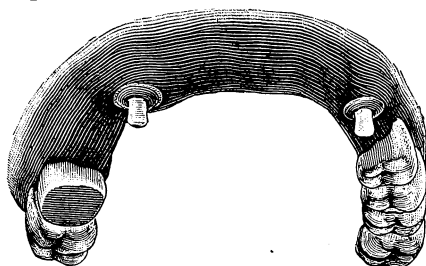
No. 4 ready for adjustment ; No. 5 shows sectional view of crown complete.



No. 4.

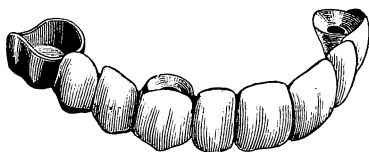
No. 5.

The following three cuts will illustrate the manner in which a bridge case can be put in on this principle.



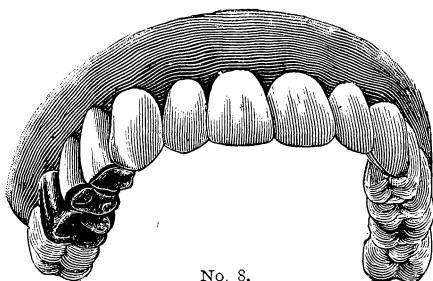
No. 6.

Cut No. 6 represents a vacancy of eight teeth to be supplied in this manner. The two cuspid teeth, where the step-plugs are seen, are screwed into position. On the right side, back of the two vacant bicuspids, we have a gold crown. This case, as here seen, is ready for taking the impression.



No. 7.

Cut No. 7 is the bridge made and ready for adjustment.



No. 8.

Cut No. 8 shows the case after adjustment.

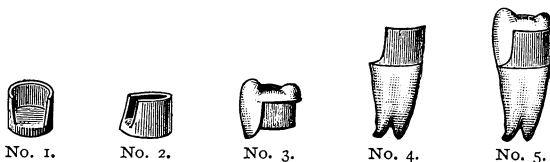
I have received many letters asking what to do where the cap does not cover the root entirely, fearing decay might take place. No fear need be apprehended. I have yet to see the first tooth root decay where the root is ground close to the gums and a Low tooth crown adjusted. It is no uncommon occurrence to see an old wood pivot

of thirty years' standing with the root in good condition. Nearly all roots that decay commence in the centre. The hard part of the root near the outer surface is sufficiently strong to protect itself. Should you desire, however, before soldering, it is easy to extend the cap with thin platina to cover any oblong surface, but it is not necessary.

THE LOW BICUSPID CROWN NO. 4, WITHOUT SOLDERING.

In my crown and bridge practice I have long had a desire for a crown that could be used on bicuspid teeth without showing gold so conspicuously as a full gold crown.

The following cuts illustrate a crown of this character :



Cuts Nos. 1 and 2 show gold sockets ready to receive the porcelain crown.

Cut No. 3 shows the porcelain crown ready to be placed in the socket.

Cut No. 4 shows socket fitted to root.

Cut No. 5 shows the crown perfected by cementing the porcelain in position. These fittings make admirable attachments in bridge work. They are fitted the same as a gold crown. Should the socket be too small trim the root, and bevel in on an anvil should it be too large. Select the size of socket a little small, as some trimming to root is necessary to get a properly fitted crown. The taper of the root can be made almost, if not quite, straight. After fitting and cementing the gold socket to the root, put a small screw through the gold socket into one of the nerve cavities, made for that purpose. Moisten and screw to place. Then you are ready to cement the porcelain in position. I have found this makes a strong and durable crown, the porcelain being supported and strengthened by the gold socket and cement.

Methods in Dental College Education.

PAPER BY L. C. INGERSOLL, OF THE AMERICAN DENTAL ASSOCIATION.

EDUKATION is a term which signifies the state of the world's enlightenment and progress,—a coming up out of a low state to a higher state of mental, moral, and physical development.

It is an interesting study of history to look back over the long track of the ages, and observe by what methods the world has been educated. The race is made up of individuals, each in a condition of primary independence. Hence the race, as a whole, can only be educated by an education of the individual members of the race. How to accomplish this successfully is the problem of the world's advancement.

Men are not like grains of wheat. When you look over a Dakota wheat-farm stretching out miles before you, you see every head of wheat like every other head; and when the threshers give the chaff to the wind and gather up the millions of bushels of grain, each grain is like every other grain, with the same possibilities of development and growth. Cadmus,—who might be styled the mythical father of dentists,—catching the inspiration of nature, thought to sow teeth, as wheat, and raise an army of men. When they came up, unlike wheat, they were of every degree of strength, endurance, adaptability, and possibility of development and service. This difference in mankind makes the problem of education a complex and difficult one. Shall it be of the individual alone, or of masses of individuals? When a number of individuals are gathered together with a common purpose to learn something that they did not know before, we call it a school. Schools are as old as

human society. When the school is gathered, the question arises, How shall it be organized, how begin, and how proceed? These are resolved into the *one* question of *methods of education*.

The school is a natural product of society; but methods of conducting it are artificial and arbitrary. It is easy to organize for educational purposes, but not easy to agree on the methods of accomplishing the object, for many do not see the importance of well-defined methods.

The true value of a school, measured by results, does not depend so much upon imposing edifices, ample equipments, and a long list of instructors named and titled, as upon the methods and manner of instruction. Methods are seldom talked of and little appreciated in our professional schools. But the method of doing anything is the all-important feature of the doing. The valued and ideal home is not constituted chiefly by a commodious house, elegant furnishing, husband, wife, and children, but by the manner of conducting the home. Many medicinal compounds are valueless, unless a certain method is observed in the compounding. It is strange that even intelligent men do not more highly appreciate the importance of methods.

I had occasion a few days since to make a concrete for a foundation, and I instructed an intelligent mechanic, accustomed to the work, as to how I wanted it made. He very readily comprehended the necessity of having good cement, clean, sharp sand, macadam rock free from dirt, and clear water; but he did not seem to comprehend the importance of exact method in putting the materials together. He got the general idea that these materials were to be mixt together, but he did not comprehend that he must adopt a method that would secure a coating of cement on each grain of sand, and a coating of cement mortar on each piece of macadam before shoveling the mixture into the trench, in order to secure the absolute solidity of the mass.

Every dentist knows that elegant equipment of an office will not, as a matter of course, secure good filling; but the value of the filling depends upon the method of putting the gold into the tooth to be filled.

Is it not time to examine our educational methods? Chief among the methods employed in our schools is the lecture system. This method of communicating instruction has the merit of great economy of time and labor, for a man can deliver a lecture to one hundred pupils in the same time, and with the same effort, as he could deliver the same lecture to a single individual. As an argument in favor of the lecture system, it admirably favors the lecturer. But other persons are concerned besides the lecturer—there are the teacher and the taught. Each pupil has an individual interest to be served. The lecture is not given for the benefit of the teacher, but for the benefit of the pupil. How are *his* interests served? Is the lecture system the best mode of instruction considered from the stand-point of the pupil?

Popular lectures for great masses of individuals, as in a political campaign, may be a necessity; but the political education of the people would be meagre, indeed, were it not for the daily and weekly press as text-books for study.

In no period of the world has the giving of solid and permanent instruction been intrusted to the lecture system. It is adapted to but two classes of mankind—to children too young to read, and to those already well instructed and educated.

To derive benefit from lectures, the pupil must have a disciplined mind, quick perception, ready analysis and generalization of thought, comparison, and a retentive memory. But, unfortunately, this is not the class that fill our colleges. Our students belong to the more numerous middle class, who can be considered as possessing the qualities of mind enumerated above in but a very limited degree. They need to *study*, and take time to revolve the thought in the mind, in order to see its bearing on the general subject, and to understand its practical relations. These processes of mind are not possible with the rapid flow of ideas communicated in a lecture. Nor does the custom of note-taking, on the part of the student, very much improve his facilities for acquiring a knowledge of the lecture. There are but few

rapid writers among students, and even the best of them; while jotting down one important fact or principle, is quite likely to allow several just as important principles expressed by the lecturer to pass unnoticed. It must, therefore, be evident from every view of the case that the amount of knowledge acquired and fixt in the memory by hearing a lecture is extremely limited. If the student makes the attempt to refresh his memory by reading reference-books, he is sometimes obliged to go over from one hundred to two hundred pages, which, having read, he finds himself clearly recognizing but here and there a thought expressed in the lecture. In the pressure of work forced upon the student by the numerous appointments of the day, very few ever find time for such reading, except by intrenching on the hours of sleep.

Before the age of books, lectures and oral instruction were the only means of popular and professional education. At the gates of entrance to large cities, where, on the days of the performance of various religious rites, there were gathered large assemblages of people from the adjacent country, the lecture platform was established. But not this alone. Groups of individuals were here and there gathered by those especially adapted to give colloquial instruction. In a lecture recently delivered by Henry Clay Trumbull, at Yale College, he says, "It was about 80 to 70 B.C. that Simon ben Shetach, as president of the Sanhedrim, establishd a system of elementary religious schools. In addition to these elementary Bible schools, there were more advanced Bible schools in connection with every local synagogue. The afternoon service of the synagogue was one of interlocutory Bible study for young and old together. The method of instruction was entirely interlocutory and catechetical. Great importance was attached to this method. A responsibility was regarded as resting upon the Jewish teacher to *teach* his scholars, not merely *talk* to them."

It was at the time of this strict adherence to the interlocutory method that Christ, the Divine Teacher, was born. He is spoken of as both preaching to and teaching the people. His sermons were very few. But he often taught in the temples, by the wayside, on the fishing-grounds, in the market-places, and often called small groups aside to some retired spot for instruction, when his method was that of dialogue, or questions and answers. These are most worthy examples of the sure and true method of permanently fixing instruction in the mind. This was an age without books. The manuscript rolls chained to the platform in the temple, or locked in the archives of the government, were accessible only to the teachers.

In the days of Egypt's greatness thousands of manuscript rolls of papyrus were gathered in the great Alexandrian Library, treating of all matters of science and religion; all the specialties of medicine were taught, even dentistry, by lectures and otherwise; the teachers only, by special favor, having access to the library. Hence it will appear that the lecture system was a necessity growing out of the want of books. But the lecture system did not lose greatly its popularity by the invention of the art of printing and the introduction of books. For the priests, who were the only authorized teachers, had taught, and the people had believed, that their words were inspired by the gods,—that knowledge gained otherwise than from them was but deception and lies. When the people came to them as the only true source of knowledge their pride was greatly fostered, and to keep up this inspiring flattery it was necessary that the teachers should discourage the use of books. Is it not true now that there is much of pedagogic pride to be overcome before the advent of textbooks into our professional schools? Do not instructors hug to their bosoms much of solacing flattery when the class sitting before them respond *ipse dixit*?

We may learn much from religious schools, which are well known for thoroughness in imparting and fixing instruction permanently in the mind. The Jewish, Catholic, Presbyterian, Methodist, and Congregational denominations alike trust to catechetical schools chiefly for teaching doctrine, and to sermons for illustration and enforcement of the principles taught in the schools by the aid of elementary textbooks. Homiletic teaching is an education more largely of the sensibilities than of the intellect.

We may learn much also from our literary institutions where the elements of all science and learning are taught. In all grades of these schools, from the common school to the highest college, the method is that of text-books without lectures, and the recitations are catechetical. There is no other method of instruction so impressive as questions and answers.

The most effective political speech that I listened to during a recent campaign was one delivered by Hepburn, of Iowa, which was made up entirely, from beginning to ending, of questions, and brief and pointed answers,—the interlocutors introduced being father and son talking over the political differences of the two great parties.

Think of teaching arithmetic and grammar by lectures, instead of by text-books of rules and principles to be memorized! The lecture is legitimate in the higher branches of mathematics,—in practical trigonometry and astronomy,—and in philology and the structure of language; for the pupils in these studies are educated up to the lecture standard. But in elementary teaching the lecture should take the lower place, not the higher.

The educators in our common and high schools make a constant study of methods of instruction. The Normal, a modern institution, is a school for the inculcation of methods of education. Yet how little do our professional schools profit by it! Why not teach dentistry, in its scientific branches, as mathematics and language are taught? We need to have more teaching and less talk,—more study of books and less rambling over the broad fields of science in the gay attire of eloquent words. Can you teach botany by taking your pupils on a stroll through a flower-garden, or by giving them a ride over the prairie in a cart? No; the student must get down out of the cart and pluck the flower, and with book in hand analyze it. He must pull the various grasses and compare them by close study of their peculiarities.

The method in our colleges and universities for more than a century has been to give instruction, almost exclusively by text-books and recitations, requiring that rules and principles be memorized from the text, word by word. Memorizing the text is one of the most important principles of elementary education. I can speak from experience, having required this in my own teaching for the past three years. Our students, in far the larger number, are qualified only for elementary methods. Why, then, adopt so generally methods adapted only to educate minds? Fifty years ago the larger number of those who offered themselves to the professions were graduates from literary institutions. In cases not of this class they were persons who showed unusual aptitude for study, and were self-educated. Such men are qualified by discipline and development of mind to receive instruction through the medium of lectures. What I have said thus far is designed to stir up the minds of teachers and students, and the profession generally, to the necessity of simple, brief, elementary text-books of dentistry—not elaborate, exhaustive treatises and reference-books, but books of rules, principles, facts, and illustrations, pointedly and concisely stated, so that they can be readily memorized by the pupil.

Another, a very shining mistake, is, as I think, found in the large number of instructors employed in our colleges. The long list of clinical instructors is peculiar to dental colleges, and constitutes a sort of dental college pageantry—a glamour of shining names and titles to attract the eye. The long list of titled men proclaimed in an announcement *sounds* well at a distance. They are as meaning as a Chinese gong at the door of an eating-house. But, looking at the matter candidly, let me ask, are not these long lists of names more for the purpose of attracting attention and for securing the influence of such names in bringing students to the college, than for the legitimate purposes of education? The system is held up before the eye of the student as an important feature of this or that school. In politics such a measure would be called *bombast*; and in educational matters is it not a kind of stuffing used to swell the college measure to commanding proportions?

When occasionally the opportunity is offered of securing some highly valued service from a distinguished operator it certainly cannot be objected to. When objection is made to the large number invited, the reply is made, "It is not expected that many of them will be present to operate; not more than one in ten ever appears at the school." This only shows the falseness of the pretence. Yet there are those who honestly believe that a large clinical corps of instructors is a very great advantage to the student in acquainting him with the different methods of distinguished operators; and some colleges advertise the presence of one or more such every week of the term. Query: Is it an advantage, or an evil, to give to the student in a ten months' or in an eighteen months' course a great variety of methods of operating? Is it well to even attempt to give to the student, while in his college course, *all* the ways and methods known to the profession? Will he not come out better at the end to give his attention to the ways and methods of *one* good operator than to have his student life vexed with a variety of methods, with the probability that he will acquire no method *thoroughly*?

It is easy to decide upon the question of methods when you go outside of dental schools, and observe methods in other departments of instruction.

Learning to operate at the dental chair is not essentially different from learning to write at the desk. Both are manual and mechanical operations, aided by oral instruction.

Suppose a pupil wishes to learn the art of writing. Shall he have *one* instructor, or *many*, each writing a different hand? Shall he form his letters after the pattern of *one* master's hand, or shall he have a new master every week, with some modification of the forms of letters pertaining to curves, angles, loops, slope, and relation of long to short letters? One week he writes a round hand; the next week, under a new teacher, he writes an angular hand; then under another teacher he writes a semi-angular hand, and so on, with slight variations every week. What sort of a hand will the boy write at the end of the term? He will have a disjointed, irregular, illegible mixture of styles, void of all symmetry and grace.

There are various methods of teaching the science of numbers. Would you put a boy who knows nothing of arithmetic under the instruction of three or four teachers, each with his different methods of calculation?

If in none of these instances it is desirable to multiply methods by multiplying teachers, why is it desirable to multiply methods in teaching the science and art of dentistry?

After a student has become proficient in one method, it is time enough then, and after he has left his *Alma Mater*, to acquire the methods of other schools and other instructors. This he can do with profit, in some cases, at least, by attending the various State and district societies, which are the colleges of the profession.

There is another method of instruction which I fear very much to touch in criticism, because of its popularity, and lest I should be misunderstood. It seems quite impossible even for the best masters of rhetoric, belles-lettres, philology, and elegant literature to so construct language that it may not be misconstrued and drawn from its intended meaning. The method or custom to which I refer is that of intrusting, to so large an extent, dental education to those who have had no special education in dentistry. While it is true that medicine and dentistry are based upon the same fundamental sciences, each requires a different grouping of facts and principles to be presented to the special consideration of the students of the respective professions. One educated for the medical profession and not the dental, the whole current of whose thoughts eddies around the medical practice, cannot make proper grouping of facts and the proper application of principles for the dental student.

Take, for example, the science of chemistry. This is considered one of the medical sciences. Suppose it is taught as an abstract, independent science, apart

from those groupings of facts and lines of thought which tend toward the medical practice on the one hand and toward the dental practice on the other, neither the medical student nor the dental student derives much practical benefit from the lectures. The student wants *medical* chemistry, or *dental* chemistry, not abstract chemistry. The dental student also needs *dental* physiology, and *dental* pathology, and *dental* therapeutics; to teach which profitably to the student, the teacher must himself be a practical dentist. A medical graduate who passed through one of our university schools where the professor of chemistry was second to none in the land, so far as the abstract science was concerned—for before him all material things seemed analyzed at his touch,—told me that after taking two full courses in chemistry he did not bring away with him from the college the kind of chemical knowledge that was of value to him in practice. He got too much chemistry and no medicine.

A dental practitioner whom I met on the cars on my return last year from the International Medical Congress, and who seemed like an intelligent man, told me that after graduating from both medical and dental departments of one of our foremost universities in the East, he did not feel competent to open an office and practice. What was the matter? I asked. His reply was, "Too much medicine and too little dentistry." A student studies dentistry, not merely for the love of science, caring not what the science is, but he studies it for the sake of a livelihood. As desirable and important as deep and broad foundations are, they may be made so deep and broad as to exhaust one's resources and prove an obstacle in the way of rearing the superstructure. A man who wants a house to live in cannot afford to spend a life-time in laying the foundation.

The books of fundamental science used in medical colleges are not adapted to the wants of medical students; hence the two classes cannot be educated together without a useless expenditure of time on the part of the dental student. I use the terms useless expenditure and waste of time guardedly. Do not misunderstand me. I do not use the word *waste* in any absolute sense; it is a waste of time only relatively to the aim and purpose the student has immediately in view. He must take it for granted at the outset that all he will get in the college term, of any branch in the curriculum, will be but a compendium of the science. It becomes, therefore, a matter of wise discrimination as to how far and how much relating to each branch of study he will attempt to obtain during the term. The medical student is expected to give as much attention to the anatomy of the foot as to the anatomy of the face; because, looked at from the stand-point of practice, they are equally important. But the dental student, receiving his instruction in anatomy in the same class, does not look upon the anatomy of the face and of the feet as equally important from the stand-point of the dental practice. He will never be called to the foot professionally; he will always stand at the head. However desirable it may be for him to understand botany, geology, mineralogy, and other correlated sciences, he has no time for these during college term. He has only time for that which is considered necessary in preparing him to enter at once successfully upon the practice of dentistry. What he has omitted must be taken up afterwards; to do which he must become a life-student.

Rotation as a Condensing Force.—Dr. James Truman says: The burnisher-point as a condensing force is not, by any means, a new idea. The rounded, convex, or cone-shaped surface was regarded at the period of exclusive soft foil as an important finishing instrument. It was recognized as a series of inclined planes acting on the well-known screw principle, crowding the laminae of foil together more perfectly than by direct action of the hand-plugger. It was not, however, applied to the rapid revolution of the engine till Dr. Herbst demonstrated its utility in this direction, and practically carried it farther than I have been able to reach with the same materials and the same mode of procedure.

How to Stand at the Chair.

W. H. WHITSLAR, D.D.S., M.D., YOUNGSTOWN, OHIO.

IN our enthusiasm over operations at the dental chair, we lose all thought of ourselves, and think only of the operation we are performing. But in the midst of all this, should we neglect our health to accomplish what we, in our mind's eye, conceive to be a skilful and enduring performance? The answer should be positively, *no!* How, then, can we be faithful to our patients, and yet conserve our well-being? One way, amongst the numerous ones, is learning how to stand at the chair in a comfortable manner, and at the same time be able to scrutinize the points to be operated on. We offer the following suggestions:

It is easy for an operator to fall into the serious habit of assuming positions in standing that are awkward, distorted and cramped, that at once bear ill consequences on the abdominal viscera as well as the organs of the thoracic cavity. We naturally assume the position that is easiest, but from point of error this easy position is often, times the wrong one. Many men, in operating on the teeth of the inferior maxilla—stand as near in front of the patient as they can; and, of course, must use the mirror in looking into most cavities of the teeth. This position requires an artificial aid. Can it be bettered? We think it can.

A right-handed man naturally stands at the right side of his chair while operating; whereas, the left-handed individual stands on the opposite side:

Now, there are anatomical reasons why both should change, from right to left, and left to right, as the case may require when operating, more especially on the molars and bicuspid. It is the lower jaw only that we are now commenting on.

Take a jaw-bone, and notice how the teeth of either side incline; the long axis of each tooth, as a rule, inclines in a line drawn from the lower border of the jaw-bone towards the median line, or remains of the anterior suture of the frontal bone. From this it is not hard to observe that a greater surface view can be obtained of any molar or bicuspid, if the operator is standing on the opposite side of the chair from the side on which the tooth is located.

Often the view is still better if the operator stands a little back of the chair, and sometimes, very often, too, it is still better when he is immediately behind.

With such an advantage in viewing the situation, an erect position, which is most natural, and but a slight inclination of the head is all that is necessary, and hence a greater freedom of the body is obtained, and recourse to mirrors, save only for reflected light, are often unnecessary. This, we may also add, allows for the patient an easier position of the head and body.

In regard to operating on teeth of the superior maxilla, the ease with which such is accomplished depends largely on the capability of adjusting the patient's head, and this depends mostly on the chair we have.

There is no chair too good for our use, and my advice to young men entering the profession is, lay out enough money to get a *first-class* chair, that *will* give a wide range of movements, even if it is necessary to let some other seemingly important things go. It is far easier to get the smaller articles afterward than to purchase the ones that are to be life-time companions. Get the *best*, and life and happiness, which means good health, are favorable toward you. But, above all things, *learn how to stand*.—*Dental Register*.

Keep Busy.—The secret of success in life is to keep busy, to be persevering, patient, and untiring in the pursuit of the calling you are following. The busy ones may now and then make mistakes, but it is better to risk these than to be idle and inactive. Keep doing, whether it be at work or seeking recreation. Motion is life, and the busiest are the happiest. Cheerful, active labor is a blessing. An old philosopher says: "The firefly only shines when on the wing; so it is with the mind; when once we rest, we darken."—*Elmina*.

Crystalline Gold vs. Foils.

BY JAMES LESLIE, D.D.S., CINCINNATI, OHIO.

IT is now just fifty years since I introduced cohesive gold foil to the dental profession, and tho it was condemned by many of the comparatively few dentists in practice at that time, it has been gradually adopted, and to-day, in the practice of the majority, stands in the front rank of materials for filling teeth when gold is required, either for the entire filling, consolidation, or for giving a hard surface to a non-cohesive gold filling. I have the kindest feeling for it and other foils as such, but believe that they have not all the properties of the royal metal that may be available for dental purposes.

For some years back I have worked in my laboratory trying to discover some form of gold that might be better even than foils, or at least be a valuable addition to them.

It occurred to me, and the thought is the question of this paper, What is the structural and working difference between gold foil and an entirely new product and new form of gold which I have discovered as the result of many experiments, and which I term crystalline gold? This question I shall try to answer. It is at least partially prerequisite to an understanding of my theory, that the reader should be familiar with the fact, that when gold is melted and poured into an ingot, it immediately forms a dense mass, which has a crystalline structure, readily seen on breaking the ingot. The next process in the manufacture of gold foil is the laminating or rolling of this ingot to a required thickness, during which this crystalline structure is largely destroyed; and, when beaten into foil, I think it may be said that it is entirely so, as under the microscope the crystalline form that was distinctly seen with the naked eye in the broken ingot, cannot be seen in foils.

The ingot, when rolled out into a ribbon, has become fibrous, and, by further extending it into a foil, its fibrosity is largely increased; but, if not extended more than four grains to the sheet, it still has firmness of continuity that renders it suitable for filling cavities of teeth. These qualities of *continuity and cohesion combined in foils* are just the characteristics in view of which I now proceed to explain the theory, which has resulted in my suggestion that the crystalline structure of my new form of gold is much better adapted to the irregular surface of the dentine than the continuous and bright metallic surface of the cohesive or non-cohesive foils.

In filling a cavity with cohesive gold foil the dentist locates a pellet of gold in a retaining-point, and it is firm and beyond the jar of the mallet or hard pressure; when he attaches another pellet it coheres to the retaining-plug, and so with the remaining pellets until the filling is complete. But often in the process, as he passes away from the retaining-point, in building up and condensing the foil about the walls, the half-finished filling has been noticed to move. The grip on the dentine, it is his delight to see, is wanting, the filling is loose, and he wonders why he loosened it; but the anchorage is still quite firm. Now, may it not be that bright, solid, fibrous and continuous metallic surface of the foils is the reason why the failure occurred? From my practical experience and experiments with my crystalline gold, I find it is entirely free from any such faults in filling, and there must be a reason for this striking difference of behavior by a different form of the same metal on the same dentine surface.

The following suggestions may help to an understanding of this marked difference between the working of foils and crystalline substances in filling teeth.

I have stated that the crystalline structure has been destroyed in the manufacture of foils, and remark now that each pellet of foil is of one entire piece, crimped or lar connection throughout this solidified mass. If the pellet was one-eighth inch folded, and when the gold is malleted, or pressed home, there is an intimate molecular union or more, there was a close union before the operator began to condense, and he has simply malleted or pressed the air from between the folds or interstices of the

pellet of foil ; but, owing to the continuous connection of the gold, some taps at one end of the pellet may jar just enough to weaken the close fitting at the other end ; and this may be the real cause of some failures in filling, and why gold " rocks and balls " and leaks.

It is here that the marked difference and behavior of crystalline forms of metallic and mineral materials for filling teeth appears. My crystalline gold is not a continuous body, held together and made as are foils, but is a distant crystallization, each crystal slightly cohering being free to move just at the immediate point of the plugger, imbedding itself closely in the dentine without dragging its adjoining crystal, as it is also free to move only as force is applied directly to it, and is then not subject to the adjoining taps as are foils that are in a continuous and fibrous mass.

This important discrimination which I have made as to the behavior of the same metal under different conditions may be, and I think is, entirely new to the profession ; but my theory is not mere speculation, for it is demonstrable in practice, and may be illustrated by the analogous behavior of amalgams. The reason why amalgams are easy to locate in and fill cavities with, is because they have a granular form produced by filing. The filings may be coarse or fine, resembling the gold crystalline structure in size, tho not in form. When mixt with mercury they are held together by being made " wet " by that liquid metal, just as materials for making bricks are held together by moisture and solidified by heat. There is nothing in mercury or the other metals of which amalgams are composed that has any affinity for dentine.

Then why does an amalgam filling adhere in many cavities from which any other metallic filling would drop ? Simply because the density of the mercury and its affinity for the amalgam, or some of its component parts, when under pressure, *expels and keeps out the air more perfectly than any other form of liquid* ; but the granular structure of the fillings, under pressure, not being of a continuous and fibrous form like foils, the most obscure inequalities of the dentinal surface are reached and gripped since the granules, tho bathed with mercury, are still free to move in any direction, and when a part is pressed home the adjoining granules when pressed upon do not drag the others out of position ; and so long as the mass remains " wet " or moist with the mercury the adaption and adherence for a time is perfect,—the mass solidifies, and such fillings remain where no other metallic filling could be made to cling. It is quite common for dentists, when speaking and writing of the changes that an amalgam filling has undergone, to declare that they are owing to the process of " crystallization " under chemical and molecular laws ; but they forget or are ignorant of the fact that a SOLUTION of all mineral and metallic substances by water, acids, or heat must be obtained before there can be true crystallization. When picking out an amalgam filling, it is not crystals that are picked out, but the same fillings that had been mixt with mercury (resembling burned brick, which is the clay and sand in grains, large or small, as they came from the workman's hand, tho bruised in mixing). What a nice, clean, and easy process it would be if we could take bars of silver, tin, and plantinum, and dissolve them by adding mercury to produce a chemical solution that might result in a perfect crystallization ; but, as this cannot be done, an amalgam filling is only a solidified mass with some part of the mercury absorbed and wanting,—may be its caloric gone, or some yet undiscovered element that passes off, yet keeps it as a liquid when alone, but will not effect a crystallization.

When my new form of crystalline gold is examined, there will be seen distinct crystals entirely different from any form of precipitates of gold I have yet seen, or with which experts are familiar. Under the microscope the remarkable distinction between a simple precipitate and a crystal is distinctly seen, as it has the peculiarly-defined forms that are due to the recognized laws of crystallography. When used in filling cavities, its crystalline structure is the only reason I can assign

why it seems to grip the dentine and *never moves as the filling progresses after a small retaining-point or groove has been made.*

Years may yet elapse before the theory herein put forth shall find general acceptance by the dental profession ; but, to my mind, it has long been clear as daylight, that indisputable facts concur with scientific principles in affirming the especial adaptation of my crystalline gold to retention by a closer attachment to the structural irregularities of the interior surfaces of dental cavities than any other form of gold. —*Cosmos.*

Women as Bread-Winners.

THO the education of the nineteenth century woman, and the use she is to make of it, are important questions—and are receiving the consideration of our most thoughtful men and women—there are those self-wise people who can dispose of the discussion with a few words and a wave of the hand.

They tell you her proper place is at home, speak of the importance of her work there, estimate the extent of her influence in this domain, where she reigns supreme, and allude to her as the “central light of a congenial home circle.”

All of which you are convinced is so, or ought to be, tho it seems hardly applicable to the woman who either has no husband to provide a home, or has one who won't do it. What is to be done with her ?

Public opinion, fearing that easy access to college education, and the consequent possibilities of business or professional careers will lead our women to undervalue, perhaps ignore, the sacred duties of wife and motherhood, demands that she be kept in the field of domestic labor ; and the woman who attempts to put aside this sentiment is regarded with more or less distrust. If she is not a plotter against the established order of things, and hasn't the most evil of designs on the old landmarks, at least she is *unwomanly, strong-minded*—terms that make the bravest of us falter. As a consequence, tho as individuals they may not stop to reason about, or even think of it, our bread-winning women, as a class, are strongly influenced in the selection of occupations by two considerations. 1. They wish to engage in those occupations that will damage the least socially. 2. They seek to be in harmony with what is womanly, as the world has it. What results? The occupations practically open to them have been so limited in number, by a mistaken idea of what is respectable, and false conception of what is suitable, that competition becomes excessive in a few branches of industry, and wages are reduced proportionately. . . .

The following incidents, told me by a dentist who stands perhaps at the height of his profession in Nashville, show what diversification of labor can accomplish. In a conversation with him we drifted to the subject of co-education.

“Do I believe in co-education?” he asked, opening his eyes, as if somewhat surprised. “I thought you knew my views to be very pronounced. Co-education? Well, I should think so. I have seen it tried. I want to tell you of a young girl in Philadelphia, the daughter of a dentist. Her father bought and paid for a very comfortable home, but died soon after, leaving no income. The family consisted of the mother, grandmother, our young friend, and several children. Having a roof of their own to shelter them, you would think these people ought to have had a comparatively easy time in providing food and clothes for themselves—so many have nothing to start on, you know—and, as a matter of fact, they did not suffer for anything ; but the children had to stop school, and by the time Miss —— was fully grown the house needed repairs and painting, and the furniture was old and shabby. The girl, on whom the burden of the support fell, was much discouraged, for she could but meet the current expenses of the household ; such extras as repairs seemed out of the question. Prof. ——, of our college, finding out something of their circumstances, sent for her. ‘I was your father's friend,’ he said to her, ‘and I would like to be yours. I know you are working very hard, and that your earnings do not

enable you to do much for your little brothers and sisters. And then you have no prospect of anything better. Now, I have a proposition to make you. I am willing to help you educate yourself as a dentist, and I am satisfied this will bring you into good circumstances in a few years."

The girl was much startled at first, but after further conversation she yielded to the judgment of her father's friend and put herself in his hands. "And what do you think?" cried the doctor, enthusiastically, "when I was in Philadelphia last, Prof. ——— took me to see the young lady. The house didn't need any repairs this time. Everything looked prosperous; there was a nice office beautifully fitted up; the house was neatly furnished; the mother kept house; the children were at school; the grandmother received patients and made appointments, and the presiding genius was a dignified, lady-like dentist. As we walked away, the Professor told me the money he advanced had been paid back, and that his protégé had a modest little nest egg to her credit in bank. And wait," he continued, "I must tell you of one other case before you go. While completing my education in Philadelphia, a lady entered our college and took up her studies among us, quietly and earnestly, in the very trying position of an only female student. Somehow this appealed to the protection of our best boys, our manly boys, you know, and their sentiments regarding her soon prevailed. Why, I never saw a girl treated so handsomely, no spooning or nonsense, you understand, but practical, solid respect and deference. I recall one new boy who entered some time after the beginning of the term; a coarse fellow—a regular bully, as a boy would express it. When he found a lady student among us he seemed greatly amused, and was disposed to enjoy himself at her expense when we left the lecture-room." The doctor's eyes flashed at the remembrance, but the next minute he broke into a laugh. "Well, that boy had the fun taken out of him very quickly, and very effectually;" and the doctor laughed again. "My fellow student," he continued, "this is her picture on the wall here—is now in Germany, and her income as a practicing dentist averages six thousand dollars a year. Better than sewing, or teaching, even, isn't it?" he asked, as we shook hands at parting.

His brightened eyes and enthusiastic tones had revealed so earnest an interest in the incidents he related, and so unselfish a pleasure in the good fortune of those two women, that I was impressed more strongly than ever before of this truth. Woman's cause has the sympathy of big-souled, deep-hearted, broad-minded men.

Their hobbies concerning our social habits, vanities, and intellectual capabilities may show the signs of oft mounting and hard riding; their lack of understanding as to our complex natures may be universal, but they are not enemies to our advancement. Rouse them on the subject of our needs, convince them of our own earnestness, and strong hands always reach out to aid us in lessening our trials.

"A female dentist!" cries some one in horrified tones. "You surely do not advocate opening up the professions to women?" Yes, if it has become necessary (mother necessity has other offspring than invention), and I have seen women working hard, half paid and half supported, who were amply bright and persevering to have made a comfortable living out of some business or profession. I am glad to say that my humanity is of the sort that leads me to prefer having my sentiments shaken by the sight of a female dentist, or doctor (a good shaking up of our sentiments is beneficial sometimes—it may separate the wheat and the chaff), to a heart made heavy by witnessing hardships I am unable to lessen. * * *Extract from article in the Round Table, by Mrs. John T. Benson, of East Nashville.*

Aluminum (99 per cent pure) is now quoted at \$4 a pound. It is not very long since it was \$11. Just what it costs to make it has not yet been disclosed; but there is reason to believe that if the price should run down to \$1, there would still be a manufacturer's profit.—*Electrical Review.*

Points in the Etiology of Pyorrhea Alveolaris.

PAPER BY J. D. PATTERSON, OF THE AMERICAN DENTAL ASSOCIATION.

WHILE I believe the disease is in every instance a true catarrh, yet I do not contend that the origin is always found in contagion from other catarrhal surfaces adjoining the oral cavity. My experience has taught me how rarely we find a considerable catarrhal condition in either the oral cavity, the nasal passages, or the pharyngeal tract, without that condition extending to all of them in some degree, and yet we may have pyorrhea of the oral cavity—or, as I consider it, a catarrh—without that condition in either of the other tracts. In my experience, however, this is unusual. But we must not argue that pyorrhea is not of a catarrhal nature because we see no point from which the contagion comes. As well, in my opinion, might we argue that no nasal catarrh exists because we cannot see a point from which the nasal passages have received infection. Catarrh has, as I believe, its original seat in the oral cavity through much the same influences that cause it on other mucous surfaces. Indeed, if the mouth is used for breathing, the mucous surface there is, on strict analogy, more liable to catarrh than even the nose, which is its classic seat, for, in addition to the shock from colds, changes in air temperature, dust particles, etc., which cause nasal catarrh, we have here influences potent for the destruction of the functional activity of the oral mucous membrane, which are not met with in the nasal cavity. There are here the irritations of abnormal stomachic conditions; we find uncleanness sufficient to poison the whole system, we find the irritation from morbid oral secretions, of salivary calculi, of artificial plates, diseased teeth with decayed and jagged edges, etc., and is it then a surprise that catarrh should attack the oral mucous membrane?

In the pharyngeal vault there is found a bursa, the "bursa pharyngea," a depression in the mucous membrane which is commonly believed to be the seat of post-nasal catarrh, owing to the facility with which irritant matter settles there and becomes the seat of trouble. In the mouth every tooth, with its gum, presents a bursa which affords lodgment for foreign matter to remain and irritate till the mucous membrane, peculiarly sensitive at this point, weeps out its protest and a true catarrh is soon in full sway.

I am firmly of the opinion, which has been confirmed again and again, that pyorrhea, or catarrh of the oral cavity, exhibits its true and characteristic symptoms when the exciting causes are varied,—*i. e.*, a true pyorrhea is not the result of one kind of irritation or cause, such, for example, as a particular constitutional condition or tendency, or idiosyncrasy, or local condition or irritation, but that its characteristic pathology may be and is exhibited when the original cause may be either local or systemic, simple or complex. I have had in my practice as well-marked pyorrhea, with pockets, and pus oozing on pressure, on palatal surfaces of teeth from the irritation produced by a constantly worn and carelessly cleaned partial plate, as I have ever seen produced by causes more obscure or systemic; the only difference being that the disease was confined to the palatal surfaces pressed on by the plate. The claim therefore sometimes made that true pyorrhea is totally different from the gum irritation found in local irritation is not, I think, well grounded. The disease, whether from local cause or constitutional tendency or dyscrasia, merges into the same pathological changes, exhibiting in its later stages the same destruction of tissue and calcareous deposits; just as catarrh of the nose, whether from systemic or local causes, will finally cause the same pathological changes, hypertrophy of tissue, destruction of bone, and deposits of calcareous matter.

In complications of catarrh we find that a "vicious circle" is established. I quote from "Ziemssen's Encyclopedia," vol. iv, p. 141, "The fluids retained may throw down chalky deposits and thus form stony concretions;" "hyperplasia of the membranes may lead to actual new formations and polypoid excrescences;" "a vicious circle' is established: all these processes being able to induce chronic

rhinitis, and being in turn produced and maintained by that disease. Chronic catarrh may also involve neighboring parts. It may extend posteriorly into the pharynx, or anteriorly into the exidermis. *The cavities adjacent to the nose may also be attacked.*" "The most familiar are the processes that take place in the cavity of the upper jaw, which may thereby be distended, and present the affection known as '*Hydrops Anti Highmori*.' In this way caries of the bones may ensue, even of those belonging to neighboring cavities and entering into the formation of the base of the cranium. The inflammation is more likely, however, to spread to the skin surrounding the nostrils. This becomes infiltrated and swells, while excoriations of the upper lip and swelling of the glands of the neck combine to present a picture of, the scrofulous habits' as taught, in the books." I also quote from Cohen on "Diseases of the Throat and Nose," in regard to calculi in nasal catarrh, as follows: "Calculi, as before mentioned, are occasionally met with in the nasal passages. They are due sometimes to a foreign body which has been forced into the nose and eventually becomes converted into a nucleus for the deposit of calcareous matter; in other cases they have been found to be due to a deposit of the inspissated mucus or sanguinolent secretions from the inflamed mucous membrane."

In the light of recent study on the subject I cannot account for the opinions of some well-known dental writers as to the origin of the deposit found well up on the roots of the teeth affected by this disease. Now, as a matter of fact, all prominent pathologists agree that accretions may make their appearance as a deposit from purulent matter from inflamed territory *in any part of the human body*. On this subject I desire to quote, in proof of this statement, from the recently issued "Hand-Book of the Medical Sciences," vol. i, p. 743. "Calcification consists in the abnormal deposit of earthy matter in or around the elements of a tissue, or *in the morbid product of a pre-existing inflammatory process.*" "The circulation of the blood may be retarded and thus favor the precipitation of the calcareous matter which it normally holds in solution." "Calcification rarely if ever depends solely on general cases; there is always a local influence, very often it is due to a pre-existing chronic inflammation. Old accumulations of pus, extravasations and exudations, are exceedingly prone to calcification." "*A mere loss of function predisposes to calcification.*" With regard to the immediate nature of the process involved in the deposit of lime-salts there is some difference of opinion. The simplest mode of explanation is as follows: "An amount of calcareous matter is a normal constituent of the blood, in which it is held in solution by the carbonic acid always present in sufficient quantity to keep in solution twice the normal amount of earthy matter. When the circulation is impeded, the carbonic acid, because of its great diffusibility, is readily absorbed by the tissues or goes to form new compounds, necessitating a precipitation of the calcareous matter. *This is likely to occur in all tissues of the body.*"

With these facts before us, does the presence of lime-deposits in the pockets of pyorrhea alveolaris still surprise us, and must we yet indulge in vague surmises over its presence?

To my mind the other pathological symptoms in nasal catarrh and pyorrhea are as clearly noticeably and identical as are the deposits in both diseases. In the oral cavity the deposit is more frequent and is seen earlier than in nasal catarrh, only because the anatomical structure in the mouth affords readier points for its seclusion and aggregation. As I have previously considered before this body the identity of other pathologies met with in these diseases, I will not here go into that subject.

Of interest in this connection is a report of the recent meeting of the American Otological Society. In a discussion on the "reflex influences in the production of naso-pharyngeal catarrh," Dr. A. H. Buck, of New York, said, "The object of my paper was to call attention to those comparatively remote exciting causes of naso-pharyngeal catarrh which act, as far as it is possible to explain their mechanism, through the intervention of the nerve system. We know little of the direct exciting causes of naso-pharyngeal catarrh. The most common indirect cause is chilling of

the surface of the body. *According to certain authority, affections of the teeth should rank next in order of frequency.*" Dr. Samuel Sexton has also said, "*I have seen many cases in which irritation in the mouth has been the cause of naso-pharyngeal catarrh and aural symptoms.*" To me these remarks, pointing to irritation in the mouth as a cause of catarrh in the nose and pharynx, point the dental profession also to another thing, and that is, that if we are slow to admit of catarrh in the oral cavity, we will soon be compelled to do so by weight of testimony from the medical profession. Irritation could not be attributed to transient dental lesions, but to the prolonged irritation and contamination from pyorrhea alveolaris.

As additional evidence on the question, I have now to point you to the usual presence of pyorrhea and catarrh of the nose in persons having cleft palate. A patient wearing an artificial obturator of Dr. Kingsley's was sent to me to have the broken plate repaired. In working over the case I quickly observed the presence of fetid chronic catarrh of the nasal passages, and also pyorrhea alveolaris in the mouth in its advanced stages. The patients for whom I had in past years made artificial vela may or may not have been afflicted in the same way,—my attention had not then been directed to the study of pyorrhea,—but since observing the marked case to which I have referred I have examined three other cases of congenital cleft palate, and in two found both pyorrhea and naso-pharyngeal catarrh. The third patient was without any teeth. I think it not unlikely that in these cases, where function is so largely destroyed and where so often a dyscrasia exists, catarrh will generally be found present. This can be proved or disproved by a continued record of such cases. It could scarcely be expected, however, that catarrh in these cases could be present in the cavity of the nose or of the mouth without being present in both, the facility for contamination being so largely increased through the opening of the cleft.

To the theory of oral catarrh the objection has been raised that when the affected teeth are lost by extraction, or drop out through destruction of their sockets, the disease will rapidly disappear; and it is argued that were it catarrhal it would continue. I answer, that were it not for the peculiarly favorable conditions made by the pressure of the teeth catarrh would not be possible. But the many depressions existing at the gum edge around the teeth, which are often augmented by neglect and accident, afford just the opportunity for the origin of catarrhal symptoms; they are the burse corresponding to the depressions in the nasal mucous membrane which there give catarrh its seat. When the teeth are gone the diseased places are soon drained and obliterated, and the mouth then presents a dense mucous membrane which is being constantly cleansed, and the presence of catarrh is rendered impossible. Were the nasal passages as readily cleansed as the mouth without teeth, and the membrane as insensible to irritation, then, I apprehend, no nasal catarrh could exist.

In regard to the question of whether pyorrhea is of constitutional or local origin, my opinion has been foreshadowed in the foregoing remarks. I believe a true pyorrhea is catarrhal, and like catarrh of all mucous surfaces the causes may be both systemic and local, or they may be entirely local. I believe that the common cause of pyorrhea is found in local irritation, frequently combined with some predisposition which may be either hereditary or acquired, and which lends to the virulence of the symptoms just in proportion to the loss of function or weakening of function produced by that predisposition, but that pyorrhea is seldom, if ever, the result of systemic causes alone; while, on the other hand, local irritation is unquestionably often the only factor in the origin and maintenance of the disease.

In Swaging a Metal Plate.—It can be much more quickly done, and with less annealing, by using a pine stick against the plate, and striking on the stick, by letting the stick slide in the direction it is wished to force the metal. It can be done with less stretching than in the ordinary manner.

F. A. GREENE.

Geneva, N. Y.

Rotating as a Condensing Force.

DR. JAMES TRUMAN, D. D. S.

(In the Odontological Society of Pennsylvania.)

THE process of rotating must be judged on its possibilities, rather than on what it has yet accomplished. No process can be truly estimated, as to its merits, till it has run the gauntlet of years of critical observation. It comes to us, however, at a period when the highest perfection, probably, possible has been reached with present modes; and it also comes to minds trained in the experience of all other forms of practice, and hence can be judged intelligently in the light of past experience,—an experience that covers all forms of practice with all forms of material. The use of hand-pressure with gold or other metals has been more uniformly successful in preserving teeth from caries than the more sudden force. It follows, I think, that any process which combines this advantage of hand-pressure with an almost equally great condensing power with the electric mallet must be of great value, perhaps, the most perfect application of force yet devised.

The difficulty in the process, as originally explained and practiced by Dr. Herbst, lies in the fact that it confined the practice to very soft, or so-called velvet foils. This seemed to me to condemn it as of no great practical value; nor could this statement be conceded without additional proof. Experiments with various foils quickly satisfied me that, with a slight change in manipulation, equally good or better work could be produced than with the velvet foils. It was observed that Dr. Herbst made use of broken excavator points, preferring the natural serrations of the crystalline structure to any artificially produced. He used this form of pressure to such an extent that the criticism was, I think, fairly made that he used two-thirds hand-pressure to one of rotation. Whether this be true or not, the hand-pressure preceded the rotary movement, and that, in my judgment, with a very imperfect instrument. Acting on this, I adopted the sharpest serrated points I could find—in fact, using the old, long, serrated instruments that fell largely into disuse after the introduction of power mallets. It is questionable whether the abandonment of these sharp points for very short ones, merely sufficient to roughen the gold, was not a mistake. Not a few have come to this conclusion. Be this as it may, the reason for objecting to them, of pitting the gold, has no force with rotation, for it must be evident that the constant burnishing of the surface will remove any pits left there by the serrations.

It is, I think, generally recognized that the property of cohesion cannot solely be relied on. The conditions of the surface of gold are not always the same, and, if not universally up to the highest point of welding, an artificial substitute must be accepted. This, in rapid malleting, is accomplished by driving the laminae of foil into each other, and does not necessarily require deep serrations. With hand-pressure it is quite different, and these should be made strong, sharp, and deep.

In the preparation of the cavity, and in the selection of gold foil, there need be no difference from that which ordinarily obtains. Good cohesive or non-cohesive gold foils may be used at the pleasure of the operator. I have used both; but as my experiments have been aimed to endeavor to employ cohesive with a rotary force, I have selected this. The plan I adopt is simply to pack with hand-pressure—not being particular to go over the entire surface with the serrated instrument, but sufficiently so to insure adaptation to the part previously inserted; then with the steel, oval point (Herbst series), or what is much superior, the agate point, condense with some degree of force, going carefully over the surface. This operation is repeated till the cavity is full. It will be found impossible to produce even condensation by this means. There will remain depressions over the surface; but these constitute no serious objection, if indeed they be not an advantage. They do, however, become a difficulty at the surface—or it is so with the present form of instruments. I have tried nearly flat surfaces with some advantage; but they do not

entirely overcome the pitting. My own judgment is that the last layers must be condensed by either hand or mallet force, using broad and short serrated instruments.

I presented in the *Dental Times* of October, 1871, the conclusions of some months of careful work on the relative value of mallet force. The fillings that were finally prepared by different operators were weighed at the United States Mint, at my request, and the result demonstrated that in proportion to the rapidity of the impact was mobility overcome, and that hand-pressure alone, on a movable base, could not produce a density equal to the mallet blow, and that the ordinary mallet blow was unequal to the rapid blow of the electric. Hence, a filling made by holding the tooth in the hand will necessarily lack density where hand-pressure is alone used. The time necessary to make similar and equally extended experiments with rotation has not been at my command, but the importance of a comparative examination of the relative value of the modes in use in condensing gold has not been lost sight of.

A number of fillings were prepared and weighed, but owing to the imperfection of the matrix used, were not regarded as conclusive. As far as they went they demonstrated the probability of equaling the density of that produced by power mallets. I am not, however, convinced of the possibility of condensing gold by rotation to the extent of that obtained by the sudden impact of the mallet.* This is, in my judgment, not the most important feature of a filling. Close adaptation, and sufficient solidity to endure the wear of mastication, are the two important elements in success, and these must be accomplished without injury to the walls.

I have alluded to the possibility of fracture into microscopic cracks. This will, doubtless, be controverted by the assertion that no skilful operator will strike the wall. This may be true; but the fact remains that the perfect operator has not yet been developed, and even if such were possible, there would still remain the great mass of the careless or unskilful to work injury.

Without specially advocating the rotary movement as superior to all other forms, it must be conceded, in the light of experience, that adaptation to the walls can be made without the slightest danger of injury, and the union is almost perfect.

In reviewing the whole subject, I think the following points have been established: That a rotary force, applied as described, will condense any form of gold foil; that it is a safe mode to place in the hands of the most careless; that fracture of frail walls is impossible with it; that teeth ought to be preserved, by its use, equally as with non-cohesive foil, tin, or amalgam. With so much in its favor, it is worthy the attention of all operators. That the mallet will be abandoned is not to be expected nor desired. All modes have a value, and will live and serve a valuable purpose. It is for us to aim to find the proper niche for all of these, that those who succeed us may avoid the mistakes of practice and blunders of unphilosophical speculation. We need to be taught, and it is important we should teach, that the only true road to knowledge is through experiment to theory, and not in reverse order; that no statement, however ancient, is worthy of the slightest consideration, unless it be thoroughly sustained by facts; that a practice is one-sided, and therefore unwise, that deals only with the visible, and fails to reach to the minutest manipulations; in a word, that a practice not based on a reasoning from cause to effect is deficient in the essentials to true success.

* Since the above was written I have prepared a filling of $\frac{1}{8}$ oz. Abbey's No. 4 cohesive foil. This was made with great care, and was as solid as, I think, gold can be made by this process; but, while very dense, it did not seem to me equal in solidity to that made by the use of the mallet. It was subsequently rolled into plate by Mr. Abbey, and a portion beaten into foil.

[But is the greatest solidity always desirable?—ED. ITEMS.]

Is the Six Year Molar Less Perfect Than the Other Teeth? If so, in What Respect, and Why?

AS to form, the first molar is less imperfect than any other tooth, both as regards size and outline, being the largest tooth in the series, and as closely as any other conforming to its typical outline.

In structure, it is inferior to the teeth in its power to resist disease. About two-thirds of all the teeth extracted are the six year molar. Dr. Taft places the proportion of decayed first molar at 37 per cent of all decayed teeth. Analyzing tables given by Drs. Tomes, Hitchcock, and Magitot, comprising about 35,000 carious teeth, show that considerably over 25 per cent are of the sixth year molars.

In looking for the cause of this defective structure, the first thing noticed influencing this tooth is its early eruption.

The body of a child is not the miniature of an adult organism, but is characterized by peculiarities of structure and function. All its organs are incompletely developed, but not uniformly so. The brain is, proportionately to size and weight, larger than in the adult, imperfect in structure and of softer consistency. The tissues generally are softer, more vascular, and more distended with fluids. The skeleton is, for the most part, cartilaginous, the muscles gelatinous, the cellular tissues are filled with serum, the skin vascular and sensitive. All the tissues at this period are in a formative condition, lacking strength and solidity, and characterized by the defects noticed in the first permanent tooth.

Deficient nutrition is that condition in which the quantity is inadequate to supply the natural demands of growth, the quality being normal. The result is a structure different in form or strength, but which, so far as is formed, is of healthy appearance.

The cause of this deficiency, as far as the six year molar is concerned, is not that a less amount of nutrient material is in the system, rapidly formed and deposited; for the voracious appetite and vigorous digestion of the average six-year-old child would successfully dispute this, but that there is a demand made by every tissue in the young body for more than its share of nourishment, and the first molar becomes more and more incapable of receiving its supply, and once formed must take its chances much as it is, while the other tissues are developing powers of resistance and the means of reparation of injury.

Not only are all the tissues demanding nourishment, but especially its neighbors on either side are being developed, and require supply which is had only at the expense of the first molar.

Anatomically considered no other portion of the human organization offers such a complex association of tissues as those of the mouth, no other has such diversified functions, and from a pathological standpoint no such significant systemic relations, and at the period at which the six year molar is developed the jaws are crowded with teeth, both of the temporary series and the partly grown permanent set; vital activity and irritability is at its maximum, and the system generally, and mouth especially, susceptible of injury and disease. After its eruption, it is surrounded by tissues irritated by the pressure of the teeth below, the gums easily irritated and inflamed, the temporary teeth being absorbed at their roots are becoming less firm in their attachment, and in every act of mastication aggravating the trouble, so that the tendency is to avoid using them, depriving the new teeth of the exercise needed to strengthen and develop them.

Again, the tooth coming so early is popularly supposed to belong to the temporary set, and its condition ignored till pain causes a visit to the dentist who relieves the patient of both pain and tooth. This cause of defect in this tooth is more important than it at first appears. Were it confined to a few it would be immaterial, but continued through generations, as it is, and multiplied by inherited tendency, any organ will succumb to such usage.

The treatment received by the teeth of a six-year-old child will account for much of their trouble. He does those things which he ought not to do, and leaves undone those things which he ought to do. He will eat any thing that is sweet, and chew any thing he can call gum, but will not brush his teeth, nor, as formerly, will he allow his nurse or mother to do it for him.—*Merriman, Dental Register.*

Incompatibility.

INCOMPATIBILITY gives rise to many dangers which may, in a great measure, be avoided by the use of the utmost simplicity in prescribing. "The tendency of the present age is toward mono- rather than poly-pharmacy, and prescriptions with the orthodox *adjuvans* and *corrigens* are less frequently seen than formerly." (Piffard.)

This subject can only be glanced at here. The following simple rules may help the burdened memory of the practitioner :

Never use more than one remedy at a time, if one will serve the purpose.

Never use strong mineral acids in combination with other agents, unless you know exactly what reaction will ensue. They decompose salts of the weaker acids and form ethers with alcohol.

Select the simplest solvent, diluent, or excipient, you know of, remembering that the solvent power of alcohol and water, for their particular substances, decreases in proportion to the quantity of the other added.

Never combine *free acids* with hydrates or carbonates.

Generally, do not combine two or more soluble salts.

The following variably insoluble salts will be formed whenever the materials of which they are composed are brought together in solutions: The hydrates, carbonates, phosphates, borates, arseniates and tannates of most earthy and heavy metals and alkaloids, and the metallic sulphides; the sulphates of calcium, of lead, and of the subsalts of mercury; the chlorides, iodides, and bromides of bismuth, silver, lead, and subsalts of mercury; the iodides of quinine, morphine and most alkaloids.

Alkalies precipitate the alkaloids and the soluble non-alkaline metallic salts, and (also metallic hydrates and carbonates) neutralize free acids.

Silver nitrate, *lead acetate*, *corrosive sublimate*, *potassium iodide* should nearly always be prescribed alone. The first with creasote forms an explosive compound. *Aconite* should never be given in any vehicle except water.

Silver nitrate, and *lead acetate* and *subacetate*, tho incompatible with almost everything, may be combined with opium; the latter forming with opium a compound which, tho insoluble, is therapeutically active as a lotion.

Corrosive sublimate is incompatible with almost everything, and should be given in *simple syrup*; even the compound syrup of sarsaparilla is said to decompose it.

Tannic Acid, and substances containing it, are incompatible with albumen and gelatin. *Tannic acid*, *iodine*, and the *soluble iodides* are incompatible with the alkaloids and substances containing them, and with most soluble metallic salts. *Vegetable infusions* are generally incompatible with metallic salts.

Glucosides, such as *santonin* and *colocynthin*, should not be prescribed with free acids or emulsin.

Dangerous compounds, because poisonous, are: Potassic iodide with potassic chlorate; hydrocyanic acid or potassium cyanide with metallic hydrates, carbonates, sub-chlorides, as bismuth carbonate, or nitrate, or calomel.

Explosions would result from the combination of powerful oxidizers with readily oxidizable substances, as—potassium chlorate or permanganate with tannin, sugar, sulphur, sulphides, vegetable powders, glycerin, alcohol, tinctures or ether.—POTTER, *Physician's Visiting List.*

Our Question Box.

BY DR. FRANCIS, OF UVALE, TEXAS.

Question 3, A. What style, make, or number of forcep do you prefer for the extraction of first and second upper molars?

B. What do you consider the quickest and best way to remove an amalgam filling?

A. Harris upper-molar forceps, made by F. Arnold & Son, Baltimore; not numbered.

B. Spear or wedge-shaped drill and dental engine. I can remove an amalgam filling in a very short time. Depends on size and position of the filling, and the patient you have to deal with.

R. E. JONES.

A. Same forceps for both teeth. Cowhorn, if I think B roots bifercate; if not, wisdom-tooth forcep. I take out every tooth in the upper jaw. (Frank Abbot, N. Y.)

B. Grind old fissure bur flat—harden it—cut filling out. D. S. KILLOUGH.

A. For ordinary and majority of cases, the right and left bayonet-shaped forceps will suffice. For difficult and badly decayed teeth, the upper cowhorn forcep is of invaluable service. When no crown is left, the superior bayonet-shaped root forcep is used to separate and singly remove each fang.

B. A sharp drill, driven by the electric engine or the common dental engine, at high speed, cutting the filling in two; or when a crown cavity, to cut away with a bur, or drill the inner portion of the filling, leaving a thin shell all around, which is easily pried off.

C. A. PAGNETECKER, D.D.S.

A. Harris upper-molar forceps, right and left, used with great satisfaction.

B. Place a little mercury on the filling, let it remain a few minutes, and it can be cut out with a sharp bur very easily; add mercury as it may be needed.

T. H. LIPSCOMB, D.D.S.

A. S. S. White's No. 16 cowhorn. I remove every molar, superior and inferior, with this forcep. Have his right and left superior, No. 18, but find no use for them.

B. Saucer-shape your cavity, and when hard rock it out. When put in scientifically, drill out with sharp burs.

W. D. M. MASON.

Collecting Dues.—The following is as applicable to dentists as to physicians: Physicians generally are, first scientists, then, if there is any time left, they devote a portion of it to the collection of their just dues. For the sake of the families, the business part should be more closely looked after, and yet, in the interests of science and for the welfare of the doctor's patient and reputation, that time is very precious for study. As the doctor naturally wants to have his relations with his patients free from the unpleasantness and uncertainties of the personal collection feature, we suggest the following plan for meeting the difficulty:

Let each doctor, at the close of the treatment of a case, or every month or quarter in chronic cases, make out a statement of the services and their value, and if he cannot obtain the cash, have the party responsible for the bill, sign such a statement as this: "I hereby acknowledge the above account to be correct, and agree to pay the amount, \$..... from date."

Then leave a statement of the amount and time due with the party, that he may not forget it. Thus you are provided with that which practically amounts to a note, which removes the necessity of ever having to prove the services in a suit at law, and which, if necessary, can be traded or sold. Most men will hasten to pay such a note, when due, who would laugh at a simple account. Always make it obligatory on them to come to you to pay their bills. You thus avoid a great deal of unpleasantness.

Antipyrin.

DR. W. MITCHELL, LONDON.

IN the February number of *ITEMS OF INTEREST*, a correspondent inquires in regard to "Antipyrin, how administered for nervous affections, where procured best; also, what bearing on the dental practice."

In regard to the foregoing, I would say, as its name implies, it is an antipyretic; and except where nervous affections (is not nerve irritation possibly meant?) is caused from derangement of the circulatory system, either from traumatic or local causes, its value would be much below that of many other drugs.

I have used it a great deal in my practice (it having been recommended to me by Dr. W. St. George Elliott), in combating the symptoms incidental to acute pericementitis; also in pulpitis, with marked benefit; especially in pericementitis, for which, in my experience, it has proved almost a specific. I find the best form for administration is the tabloids prepared by Burroughs & Wellcome. These contain five grains each; of which I prescribe three to be taken when the case is presented, and one in the course of an hour, if no subsidence of symptoms be noticed; in patients of a healthy, vigorous capacity I prescribe two in an hour's time. The reason for this is owing to its influence on the heart's action, causing, as it does, a decrease in the number of beats, tho not in the force. In peripheral irritation, associated with general febrile disturbance, its action is beneficial; it will prove an invaluable adjunct to the pharmacopeia of the dentist, who has heretofore had to combat malarial influences in connection with the treatment of devitalized teeth.

I have failed thus far to notice the cerebral symptoms incidental to the administration of quinia, a drug that will be almost entirely superseded in dental practice when the merits of antipyrin become known.

Pyorrhea.

A LADY came to me with the left upper central incisor badly diseased from pyorrhea. The anterior alveolar wall was entirely gone, and a good share of the posterior wall. There was an attachment of the posterior or palatal surface only. The tooth could be rotated by the fingers, and was elongated about a quarter of an inch. The lady desired to have it extracted. I determined to try replanting. I took an impression of the teeth as they stood in the mouth, in plaster of Paris, and had a splint swaged from gold plate which would cover the lingual surfaces of the six anterior teeth, and extending over the cutting-edge enough to get a bite on them. I then extracted the tooth. On the labial surface of the root, well toward its apex, were three little points of calcareous deposits, altogether not as large as a pin-head, and the pericement on the palatal surface was considerably thickened. I opened the canal, and found a living pulp, which I removed, and then filled the canal, treating the root with a solution 1-500 of bichlorid of mercury. I then drilled into the jaw enough to enable me to replace the tooth in its natural position, and then cemented the splint in position. I asked her to come back the next day, that I might see how it was progressing. She told me that in the evening, after going home, she had some pain in the jaw, but the next day there was no pain and the soreness had passed away. After she had worn the splint for about two months I took it off to ascertain the condition. The tooth was attached, but not quite strong yet. The splint was replaced, and she wore it for two months longer. It is now over nine months since the first operation; the splint is off, and has been for three months, and the tooth seems strong, tho just a little loose, but not more so than hundreds of teeth that we do not consider diseased.

I do not say there has been a reproduction of tissue, but there appears to be a reproduction of the alveolar process, and the recession of the gum is considerably less than it was. Of course, we cannot tell what its condition may be a year hence, but at present it appears to be a success.—*Dr. Marshall.*

The Wilmington Dental Manufacturing Company and the American Dental Manufacturing Company, of New York.

FROM "M. AND F. TIMES."

AN item of news that is of interest and importance to the dental profession all over the world, is that relating to the absorption of the business of the American Dental Manufacturing Company, of New York, by The Wilmington Dental Manufacturing Company. The last-named company has long been recognized as among the leading manufacturers of the world in the way of high-grade teeth. The American Dental Manufacturing Company has been equally renowned as one of the leading manufacturers of first-class dental instruments of every kind. The works are on West Thirty-sixth street, New York City, and the New York office and warerooms are at 1298 and 1300 Broadway. There is a branch depot at 78 State street, Chicago.

The Wilmington Dental Manufacturing Company has heretofore engaged in the manufacture of porcelain teeth exclusively, and has long been desirous of having the facilities for the manufacture of dental instruments. By this arrangement this has been consummated. It is not only an advantage to the company, but will be of considerable advantage to the dental profession. The entire business of both concerns will henceforth be carried on under the style of The Wilmington Dental Manufacturing Company, and in that fact alone is to be found a sufficient guarantee that a high standard will be maintained in both departments. The former President of the American Dental Manufacturing Company, Mr. J. A. Hanway, remains at the head of the instrument-making department, and, as formerly, the instruments made will be unrivaled in make and finish, and complete adaptability.

The Wilmington Dental Manufacturing Company's plant is located at Wilmington, Del., and is one of the most complete and admirably managed establishments of its kind in existence. The general offices and depot are at 1413 Filbert street, Philadelphia. The able and popular President, Dr. J. F. Frantz, remains at the head of the consolidated organization, and in that fact is to be found a tacit guarantee of the most complete and enduring success. The Wilmington Dental Manufacturing Company now ranks as one of the two largest concerns in the United States engaged in the manufacture and distribution of artificial teeth and of the instruments relating to both operative and mechanical dentistry.

Formation of New Dentine.—A lady, aged thirty-two, came to me in May, 1882, eight years ago. I found in a lower second molar a grinding-surface cavity, and the pulp exposed. I capt it by flowing gutta-percha and chloroform over it, and filled the cavity with oxyphosphate. In July, 1884, she returned to have the filling replaced. My first idea was to fill with metal, leaving a portion of the oxyphosphate in the tooth; but having a curiosity to see what condition the pulp was in, I took out the oxyphosphate and the gutta-percha, and found the pulp not exposed; it was covered with new dentine. I refilled the tooth with amalgam. Within the last week I have seen the patient again. The filling has served till recently, when a portion of the lateral wall broke down. She came with the filling somewhat loosened, an abscess being at the end of the root. I took out the filling and found a large mass of new dentine filling the pulp chamber, which I burred out with considerable difficulty till I was able to guess where the pulp-chamber was. There was perfect access to it—a good chance for me to drill down into the canals if I could find them. I drilled down into the dentine a distance that would be two-thirds the ordinary length of such canals, in each root, and I failed to find anything but secondary dentine filling the canals. I was afraid to risk going farther, and I refilled the tooth.—*Dr. Ottolengui.*

Dr. Jennie F. Spurrier.

WE believe Mrs. Jennie F. Spurrier, of Springfield, has the honor of being the first lady dentist in that part of the country. Mrs. S. studied for four years under Dr. C. G. French, one of the oldest and ablest dentists of Springfield. It is now eleven years since Mrs. Spurrier opened her office. She met with a storm of opposition; but she pursued the even tenor of her way, and to-day she has a large practice. This is only an evidence of what a woman can accomplish, when she puts her whole mind, energy, and ambition into her life's calling. It took years of close application to business to overcome the prejudice against a woman in the profession; but that Mrs. Spurrier has overcome by doing better work than many of her competitors; by dealing honestly with her patients, and showing them what results would follow her mode of treatment of diseased or decayed teeth. We are assured there is nothing in the line of dental work that Mrs. Spurrier cannot do, and that with nervous women and children she is very successful, her gentle and soothing touch giving them confidence in her. All the latest and most modern appliances are found in her office, and it is wonderful to see the dexterity with which she handles the instruments used in her profession. Of course, it is not every lady that can become a dentist, for many lack the nerve and muscle. Writing of Mrs. Spurrier, to a local paper, the late Banker Ridgely said:

"Mrs. Spurrier is the daughter of an old and respectable medical practitioner, and well educated. In addition to other qualifications, she possesses, in a degree unusual with her sex, firm nerves and much muscular power, qualities very desirable in dental operations."

In addition to the above, the lady has the endorsement of a number of our leading physicians as being the best tooth extractor in the city.

But it is not on her success alone, that Mrs. Spurrier is to be congratulated. She has paved the way for other ladies to follow in her footsteps, thus opening a new field for women, and one wherein they can succeed. In the December number of *ITEMS OF INTEREST*, a dental journal published in New Jersey, a Dr. Spencer, of Virginia, severely criticizes "women dentists," as he calls them. In the January number of the same journal, Dr. Cobb, of St. Paul, Minn.; Dr. Silvers, of Missouri; Dr. Hale, of Indiana, and others, rush to the defense of "women dentists," showing that the desire for fair play has not deserted all men who write "D. D. S." after their names. There are now lady dentists all over the country, and they are giving great satisfaction. They have come to stay, to increase and prosper as the country grows.

A. B.

Colleges vs. State Societies.—I am a young man, and have been three and a half years in a country dental office, and have attended one course of lectures at a reputable college. I see by the February *Practical Dentist*, that a person desiring to practice dentistry in Massachusetts, has to pass an examination before the State Board. If other States should follow, I ask, What is the use of attending a college, why not go before the State Board with the money you spend attending lectures? For goodness sake, give a young man a little show. Don't keep piling the load all on his shoulders, lest he may fall under the burden. There are lots of old practitioners that speak of colleges in a disreputable way, when, all they have in the world to cause them to be recognized as a dentist, is a bald head. Put old and young all on the same cable, and if we loose our grip, it's all right; but let young dentists have some show.

I appreciate your "ITEMS OF INTEREST." It is interesting and instructive. Its variety makes it the more interesting, and its practical character makes its instruction the more valuable. It seems to be a judicious gleanings from all sources.

Council Grove, Kan.

F. G. COREY.

Uniting Porcelain to Amalgam.

BY DR. C. H. LAND, OF DETROIT, MICH.

AS an auxiliary to the process of molding sections of porcelain, so that they may be made to conform to the exact shape of the cavity in a decayed tooth by means of a metallic matrix, it has, also, come to my lot, to discover and perfect a method of causing amalgam to adhere to porcelain, or any other vitrified substance, demonstrating a wonderful degree of tenacity; and, most important, provides a means of establishing both fillings, inlays, and porcelain crowns with a cement that is absolutely impervious to the action of the fluids of the mouth. By actual tests, the adhesion will sustain a weight of over two hundred pounds to the square inch of surface covered in practice. I have molar crowns composing simply the cusps, the proximal side has a biscuited or porous surface fused thereto. This surface is then saturated with a solution of gold, and, when completed, forms a tooth section provided with a coating of pure gold, adhering firmly to the porcelain. To this gold coating, amalgam will become thoroughly and firmly attached. In many instances, the roots of molar teeth may first be built up with amalgam and allowed to harden; it is then trimmed to a convenient shape, a suitable gold lined crown selected, and amalgam burnished to the gold surface; also, amalgam is burnished over the prepared root, and the two carefully malleted together; a quick setting cement is then placed between the crown and the adjacent teeth. This holds the cap in place, until the amalgam becomes hardened, when it can be removed, and all rough surfaces polished. By the aid of this new discovery, a great variety of new and useful operations are made possible.

Large cavities in molar teeth may have porcelain stoppers amalgamated in place. Eighth, quarter, half, three-quarters, and entire crowns may be cemented to defective teeth with a substance, that years of experience have shown is absolutely free from being destroyed by the secretions of the mouth.

[This must be well worth the attention of the profession.—ED. ITEMS.]

Artificial Teeth Removed from a Man's Stomach.

LORENZO HINCKLEY, of Madrid, a small town in the interior of Maine, while asleep, swallowed his artificial teeth. Local physicians were unable to relieve him, and on Monday he came to the Portland General Hospital. In the meantime he had suffered terribly, being unable to swallow anything.

On Tuesday, Dr. Louis W. Pendleton, the hospital surgeon, performed a preliminary operation, cutting open the abdomen, exposing the stomach, and sewing the organ to the flesh about the incision by fifteen stitches. He then allowed the patient to remain for three days, until the stomach had adhered firmly to the tissue. This was done to prevent coughing or forcing out the gastric juice and cause peritonitis.

To-day he completed his operation. An incision was made into the stomach large enough to admit three fingers, and the teeth were found to be lodged in the esophagus, three inches from the stomach and beyond reach. Dr. Pendleton had prepared for this emergency a long piece of whalebone perforated at one end. Through this perforation, which was like the eye of a needle, a thread was passed attached to a sponge. This instrument was passed from the mouth down through the esophagus, and pulled out of the incision in the stomach, the sponge taking the teeth before it into the stomach, whence they were easily removed. The edges of the plate to which the teeth were attached were serrated, and the muscles of the esophagus had contracted about it, holding it firmly.

Mr. Hinckley is quite comfortable to-night, with the chances in favor of his recovery. The operation was a very novel one, and is attracting attention, both among the medical fraternity and the general public.

History of Meharry Dental Department of Central Tennessee College.

DR. G. W. HUBBARD.

THE Meharry Dental Department of Central Tennessee College, Nashville, Tenn., was organized October, 1886, and has been in successful operation since that time. It was especially designed for the education of colored dentists, tho no distinction is made in regard to race or color. It is the only institution in the Southern States where instruction in dentistry is given to colored students.

It has a graded course of study, consisting of three sessions of five months each. The classes in chemistry, anatomy, physiology, and materia-medica, take the same course of study, and recite with the students in the medical department.

During the first session, the students are required to perform one hundred experiments in the chemical laboratory, including practice in weighing, measuring and finding the specific gravity of various substances, preparing gases, and performing most of the other experiments given in the text-book.

During the second session, a thorough course is given in qualitative analysis. Excellent opportunities are offered for clinical work. During the past session, over six hundred cases were treated in the dental department.

During the past year, a new dental and pharmaceutical building has been erected. It is constructed of brick, with the exception of the first story, which is of stone; it is sixty feet long, forty feet wide, and four stories high. It contains a dental laboratory, chemical laboratory, dental operating-room, waiting-room, and an amphitheatre, capable of seating two hundred students.

We are greatly indebted to W. H. Morgan, M.D., D.D.S., Dean of the Dental Department of Vanderbilt University, for valuable counsel, timely assistance, and hearty sympathy in this work.

This enterprise has the endorsement of the Southern Dental Association, and its graduates have been well received and kindly treated by the dental profession of the Southern States.

On account of public opinion, many dentists do not wish to operate on colored patients, and would gladly welcome properly qualified colored dentists, who would relieve them of this embarrassment. A very promising and useful field is now open in this direction; and, in every large city of the South, one or more colored dentists would have little difficulty in securing a remunerative practice.

A Unique Piece of Bridge-Work.

EDITOR ITEMS OF INTEREST:—The article entitled "Home Made Bridge-Work" in the December ITEMS, brings to mind a case I saw a few months ago.

The patient complained of his mouth being very sore. On examination the cause was at once apparent. The lower incisors had been lost, and in their place were four artificial teeth united by rubber to four loops of narrow gold, and attached to the cuspids by gold bands. The rubber rested on the gum, and as the piece had not been removed since it was placed there, some eight months previous, its sanitary condition may be imagined. The patient informed me that the natural teeth had become so loose and troublesome that he was obliged to have them extracted, and that the dentist who performed this operation had replaced them in his mouth by means of the bands, and allowed the apices of the roots to touch the gum. This, however, was not satisfactory, so the natural teeth were replaced by artificial ones, and the intervening space, between the teeth and the gum, filled in with rubber and inserted as we saw it, minus the teeth. As the patient was a transient visitor we did not have an opportunity to do anything more than remove the piece, cleanse it thoroughly and replace it, at the same time directing him to have it replaced at the earliest opportunity by something that would be easier of removal and more cleanly.

Crookston, Minn.

W. A. ROBERTSON.

Menthol in Acute Rheinitis, and Other Affections of the Throat and Nose.

1. It stimulates to contraction the capillary blood-vessels of the passages of the nose and throat, always dilated in the early stages of head cold and influenza.
2. It arrests sneezing and rhinal flow.
3. It relieves, and indeed dissipates, pain and fullness of the head by its analgesic properties, so well known by its action when applied externally to the brow in cases of *tic douloureux*.
4. It is powerfully germicide and antiseptic. It thus kills the microbe of infection, and prevents dissemination.

The remedy may be employed by means of a general impregnation of its vapor through a room or house, or locally to the nostrils and air passages. There are several methods.

1. A 10 to 20 per cent solution of menthol in almond oil, in liquid vaseline, or in one of the many other odorless paraffin compounds, can be sprayed into the nose or throat, or about a room.
2. By placing twenty or thirty grains in an apparatus specially designed by Rosenberg for administering the drug in laryngeal consumption by inhalation, in the form of vapor mingled with steam.
3. By placing one or two drams of the oily solution in a Lee's steam draft inhaler, or bronchitis kettle.
4. By placing a saucer of water containing a similar quantity of the crystals over a gas burner in the hall, by means of which the whole house is kept constantly permeated with the drug.
5. But by far the most convenient method for personal use is to carry always the ingenious pocket menthol inhaler known as Cushman's, which should be used not only on the first approach of an attack, but three or four times a day during an epidemic, and always in cold-catching weather by those subject to head colds.

The instrument consists of a glass cylinder four inches in length, half an inch in diameter, and open at both ends. The tube contains crystals of menthol closely packed and prevented from escape by perforated zinc and cork. The opening at one end is twice the size of the other, the larger being intended for inhalation by the mouth, the smaller for the nostril. It is not to be simply smelt, but well sniffed or inhaled, so as to cause some tingling or smarting, a sensation which is quickly followed by that of coolness and openness of the previously "stuffed" and heated nostril.—*Brown, Medical Press and Circular.*

Repairing Gold Fillings.—I wish to draw your attention to what, I think, is a revolution in the method of repairing gold fillings. For two years I have been in the habit of doing all my repairing by building directly on the gold, after it was annealed in the tooth. For some time I employed a separate flame and a chip blower to blow the flame on to the freshly filed surface of the gold, from which has been evolved the present appliance.

I have made diligent inquiry, as to the methods of others, personally, and through the mail, and I have never yet learned that others had "tumbled" to the idea; so, I think, it may probably be termed a new idea in dentistry.

The only dentist who has yet seen the new appliance outside of my office, is Dr. Julian W. Russell, of Brooklyn, who, last week, saw it work here, and, also, inspected work done by this method a year ago, the patient happening to be in the office when Russell was here—the building-up job illustrated in our circular. On his return he will probably give a clinic at Brooklyn.

I write you these points to assure you that two years' practice has supervened before making my announcement, and that I will, this season, appear before the profession, and substantiate every claim I have made.

Sacramento, Cal.

S. S. SOUTHRUTH.

Zinc Plastics.

DR. OTTO ARNOLD, COLUMBUS, O.

FOR filling root canals, zinc plastics are unsurpassed. The method I have practiced for a long time, with more satisfactory results than any other, is to carry these to the apex on shreds of cotton of a fineness suitable to the case in hand, using necessarily the non-sticky variety. The facility and greater certainty with which the apex may be reached, combined with the imperviousness and antiseptic properties, make them the ideal root filling. For use in connection with crown and bridge-work we have nothing to compare with them, and can only say that they stand alone. For entire fillings in teeth that promise pathological complications, or for obvious reasons require temporary operations, they are a most valuable material, but the fluid should be fresh. Taking them all in all, they occupy an important place in dentistry, and we could ill afford to return to the methods in vogue before their introduction.

But like all good things zinc plastics are often abused, and their use is not always followed by the best results. The grateful sense of comfort following their introduction into sensitive cavities affords too great an inducement for their use in cases demanding something more permanent. This property is too often taken advantage of for hastily terminating a disagreeable engagement rather than subserving the best interests of the patient. For the time being the patient is satisfied; but when, in a few months perhaps, the filling has appreciably disintegrated, there is disappointment and a diminished regard for dental principles in general. The operator who has so little control over his patient that he cannot do thorough work at once in simple but sensitive cavities, will probably accomplish little more at future sittings. I am opposed to temporary fillings as a substitute for something better, except possibly with children, or where pathological conditions prohibit.

But the principle provocation for criticism is the indiscriminate practice of prostituting a good thing for uses other than its proper one. Zinc plastics are used to a large extent for front teeth, and recommended for permanent work, under such significant, but deceptive, names as bone fillings, porcelain fillings, etc., etc. The outcome of such practice can result only against the general good of the profession through the ultimate disappointment and loss to the innocent victim.

The remedy that suggests itself against such abuse is to be more explicit in imparting advice. We are consulted as authorities on these subjects by a confiding public; let us see that we enlighten our patients as to the facts and fearlessly uphold the right. When temporary fillings must be inserted impress the patient forcibly as to their limited utility. If such fillings are preferred on account of inexpensiveness, or for any other reason, be emphatic in calling them temporary fillings, and nothing more. It is our duty to denounce, in no uncertain terms, all doubtful practices that tend to reflect on our profession. An exposition of disreputable methods in vogue for selfish gains will do no honest person harm; but so strengthen public confidence as to work lasting benefit to both patients and conscientious operators, while all doubtful methods will be left to their true sphere—the office of the enterprising advertiser of nostrums and miraculous devices.—*Dental Register*.

Boston Dentists are not well pleased with the action of the Massachusetts Board of Registration in Dentistry, because it granted a license to Isaac B. Sawtelle, the fratricide, while the fellow was an inmate of State Prison, serving a sentence for a heinous crime. Many dentists have been dissatisfied with the administration of the present board, alleging that it has been unfaithful to the trust reposed in it, and generally unmindful of the duty it owes the profession in the way of protecting it from the competition of quacks and preventing the admission to practice of persons of immoral character. They threaten to bring the matter to the attention of Governor Brackett and to ask him to order an investigation.—*N. Y. Tribune*.

EDITOR ITEMS:—I have some long teeth, but not quite so long as some have claimed they had. I also have some lower molars, with four and five roots; upper molars, with but one root (not a wisdom tooth), two, with one very broad root, and one small one, making the teeth look like mittens with thumbs. I also have several different shapes of supernumeraries, some short, and some shaped like a pear; others long and slim, and others I cannot describe.

Will some one tell me how to clean and preserve my box of "curiosities?"

I have a superior left wisdom tooth with a large piece of the alveolar bone attached, more than twice the size of the tooth. It reached from the second molar round the point of the jaw, having a deep incision on the back side where the large artery runs through it, and several others, with large pieces of the alveolar on them.

Morrisville, Vt.

J. A. ROBINSON.

EDITOR ITEMS:—You are mistaken in saying *all* ruminants are without upper front teeth. The rabbit is a ruminant, yet he has front teeth on the upper jaw. There are some singular circumstances about edentulous, or partially edentulous, animals. In the jaw of the embryo of these animals the follicles, and even the crown of these teeth, are formed, but never come to the surface, being absorbed about the time of birth or shortly after. This is also the case with the young of the whale that gives us the whalebone. The teeth exist in the jaws of the embryo unerupted, but are absorbed and never show themselves. Also, the sloth has the same singular mode of partial dentition.

J. H. BEEBEE.

Rochester.

Patents.

PERHAPS, kind Editor, you will give room in your journal for a few words from the West. *ITEMS OF INTEREST* reaches us monthly, bringing words of information and cheer, and tho we cannot agree with all its contents, it is a pleasure to give a nod of approval to those that meet our views, and a word to those of a discordant nature. I am much interested in the subject of patents, and have read many plausible arguments against them; but I am still unable to see whereby any member of the dental profession becomes "unprofessional" when he invents a good article, has it patented, places it on the market and receives his just reward for time, labor, and money expended. I think patents beneficial to the profession. The knowledge that there is a harvest to reap from a good patent, stimulates genius and gives to the world many valuable inventions that otherwise would never come to maturity. I say, encourage genius by applauding and compensating the success of all that are fortunate enough to have a good invention patented.

M. B. H.

EDITOR ITEMS:—Please give the analysis of salivary and serumal calculus, and of the deposit commonly found in the bottom of tea-kettles. We have a specimen of salivary calculus which weighs 4 pwts. 6 grs., and is one and one-half inches in length, and at its thickest part is three-quarters of an inch. Do you know of a larger specimen?

W. H. POVALL.

Mount Morris, N. Y.

Arrangement of Air Chambers.—When I use an "air chamber" at all, it is cut from a paper box, and shaped as my judgment of the case dictates. The greater surface the chamber is to cover, the thinner the paper. Paper is better than anything I ever used, because it is cheap, and when wet, it conforms accurately to the shape of the roof of the mouth, thus causing a uniform strain on tissue. In the impression, I enlarge the rugae a little, and if palate is *hard*, cut a piece of the cloth, that comes on sheet rubber, the size of the *hard* palate, and place on the model before packing.

A. CHAMBER.

Fort Scott, Kansas.

The Dentist's Assets.

PROF. C. M. WRIGHT.

THE dentist's assets amount to a few hundreds, or, at best, a few thousands of dollars, while his working capital before death could be easily and fairly estimated as a non-transferable capital of many thousands of dollars. The reputed skill, the moral integrity, the business capacity, the persistent efforts, the "personal practice," of the man in his prime are practically worth, in some cases, hundreds of thousands of dollars, placed at interest at six per cent per annum. The man owning \$100,000 in money frequently works hard to make this money earn for him an income of six per cent, or \$6,000. The dentist earning \$6,000 from practice, is then, in one sense, worth to his family \$100,000. Twelve thousand a year at six per cent equals \$200,000.

But the \$200,000 is only a life interest. It is like a gas well which is profitable as long as it flows, and the flow may stop or decrease in quantity at any time. Another point in regard to a dentist's capital (shall we say floating capital?) is that it is at its maximum for about a quarter of a century, at best, or say from thirty to sixty years of age. Few men before thirty years of age have an income of much significance, and by sixty years of age, the work of the average dentist, as far as an income-gatherer, is over. So that the material wealth of the dentist consists of an *income of money*, for, let us say, thirty years, which income during this period, is sufficient for himself and family, enabling them to maintain a home establishment, affording great comfort and a degree of what we may call quiet elegance. The most successful and business-like dentists, by the exercise of some financial skill, and considerable prudence in the way of expenditure during the period of the thirty years of paying practice, become real owners of the homes of their families; and I use the term *real* owners, because of the frequent and uncomfortable mortgages casting clouds over the clear title of many of these elegant homes believed to be owned by dentists in good practice.

Besides the good income—that is, the income which affords the comforts and elegancies of the 19th century, in a scale of society as far removed from the lowest, as it is from the highest grades, the successful dentist is generally the possessor of life insurance policies valued at from 5,000 to 30,000 or 40,000 dollars—which his income permits him to maintain, and which form the most important part of the effects of the dead dentist, who has been a successful and prudent dentist during his years of activity. This is all that I can say in regard to the material wealth of the dentist.—*Dental Register*.

Mercurial Poisoning.—The following, from *Mitchell's Chemistry*, is pretty good evidence on the question of mercurial poisoning from red rubber plates. L. P. Haskell:

"Prof. Salisbury says some of his students have used the copper test for mercury in rubbers. No response has been obtained *before* vulcanizing, but *after* vulcanizing, evidence of *abundance of mercury* has been obtained, showing a change to have taken place to a more soluble compound or to *metallic mercury*.—*Mitchell's Chemistry*.

Before me lies a card.—Do the words on the card lie? "Patent Dental Anesthetic for painless extraction of teeth, producing no unconsciousness," is what the card says. F. E. Jaques, patentee, Burton, Ohio. A few days ago two men came into town, offering for sale, not the anesthetic, but the right to use, in certain districts: saying the city of Erie had been sold for, if I remember rightly \$500.00, and Dr. Lawrence and he was doing an immense business.

I did not see any operation performed, so I cannot say anything for or against it. I did not have a chance to talk with patentee, and learned very little about it.

I stated my position in regard to selling districts for its use. I do not favor such things and have no faith in the anesthetic. What is it? Has any one seen it or used it, and can give any information?

Girard, Pa.

G. F. WOODBURY.

For Our Patients.

A Story of Science.

BY ONE WHO KNOWS NOTHING ABOUT IT.

A PHILOSOPHER sat in his easy chair,
 Looking as grave as Milton ;
 He wore a solemn and mystic air
 As he Canada balsam spilt on
 A strip of glass, as a slide to prepare
 For a mite taken out of his Stilton.

He took his microscope out of his case,
 And set the focus rightly :
 The light thrown back from the mirror's face
 Came glimmering upward brightly.
 He put the slide with the mite in place,
 And fixed on the cover tightly.

He turned the instrument up and down,
 Till, getting a proper sight, he
 Exclaimed—as he gazed with a puzzled frown—
 “Good gracious !” and “Highly-tighty !
 The sight is enough to alarm the town
 A mite is a monster mighty !”

From t'other end of the tube, the mite
 Regarded our scientific—
 To its naked eye, as you'll guess, the sight
 Of a man was most terrific :
 But reversing the microscope, made him quite
 The opposite of magnific.

“One sees the truth through this tube so tall,”
 Said the mite as he squinted through it ;
 “Man is not so wondrously big after all,
 If the mite-world only knew it !”

MORAL.

MEM—Whether a thing is large or small
 Depends on the way you view it.—*Fun.*

The Back-Woodsman at the Dentist's.

“CAPT'N, did you ever see a dad-ratted coon treed?” he asked a New York dentist.

“Don't know that I have—but why do you inquire?” said the dentist, while looking curiously at his visitor.

“Kaze,” said he, “I've tree'd that ere coon”—pointing to a sorrowful looking molar—“or yeou kin grind me up inter sassage meat and put pepper and sage in fur seas'n, by Gosh.”

“How so?” asked the dentist.

“You see, Capt'n,” he replied, taking a seat in an easy arm-chair, “ware I kum frum, in old Vermont, tooth tinkers of the right sort aint oncommon thick, and so that ere coon wot I pinto at has been kick'n up the all-firedist rack't in my grub-mill yeon ever heer'd tell on. The darn'g thing went rite inter the cirkuss biz'ness,

and fur goe'n on two weeks, by Gosh, I've been the only critter tend'n the perform-ance; so yest'day, Bob Akron, the man I wurks fur, wuz com'n to York, and he sed I might cum too, and get the cuss'd thing tuck eout, and see'n as heow Bob wuz goe'n to foot the bill, I klozed up the barg'n so quick that it would make you're head swim, by Gosh. When I landed form the keers, one on them ere skreech'n Injins—wot hollers, 'Want a kab—want a keerage? 'loud 'nuff to make a meetin'-house rattle—kind'r got to talk'n to me, and I axed him ware I could find a tip-top tooth yank'r, and he pinto to yeour sheebang, but bile me up inter fat fur taller candles, Capt'n, if the darn'd coon didn't let up hurt'n the min't I sot eout to kum here, and sez I to myself, hee's treed, by Gosh."

"Do you wish me to bring the coon down with one of my patent shot guns?" asked the dentist, with a very big smile.

"En'y dang'r uv the darn'd thing kick'n, and hurt'n a feller?" he asked.

"Not the least."

"I'd kind'r git the wust on it 'ten'rate, wouldn't I, Capt'n?"

"But then," said the dentist, "you'd get the best of the coon."

"Guv me yeour paw on that ere keerd, Capt'n," said he, extending his hand, "but shiver my pate if I wouldn't guv a kleen dollar to hev the hurt all on the coon's side of the roost, I would, by Gosh."

"The coon, I am afraid," said the dentist, "has the best of you in that particular."

"Yeou aint got noth'n to bring the darn'd critter deown, I s'poze, Capt'n, without hauling him kleen eout, hev yeou?"

"No—nothing."

"Yeou couldn't kind'r fetch the sarpint, hide, haunches and all, without my know'n ov it, could yeou?"

"No, unless you took laughing gas, chloroform or ether," said the amused dentist.

"Iz them costly fix'ns, Capt'n?" he asked.

"From two dollars up to ten dollars."

"Je-ru-se-leum," he intonated grotesquely. "Why, Capt'n, the fellars eout our way don't ax but a quarter—couldn't yeou kum deown a little on them ere figgers?"

"Not a penny."

"Whot's about yeour price to dew the thing up in the ord'nary way, Capt'n?"

"Fifty cents."

"Would yeou let a feller see the darned thing yeou dew it with?"

"Oh, yes," said the dentist, good naturedly, "this," grasping a pair of heavy tongs left in his office by a mechanic employed to repair a gas-pipe, "is the latest and most approved instrument used now by all high-toned dentists for bringing down coons, as you call aching teeth."

"Great Scott and Davy Crocker!" he ejaculated, with a sickly smile on his face, and looking aghast at the formidable pair of tongs, "I kind'r reck'n, Capt'n, sumthin' is got to come wen them ere things gits a grip on the critters; 'tenerate, I aint got enny of the spondulix with me neow, but I see Bob, and kum back agin," saying which he started for the door musing audibly—"By Gosh, if them 'ere tooth yankers don't beat my first wife's relations—darn the York stile, I say, by Gosh."—*The Practical Dentist.*

Effect of Eruptive Diseases on the Teeth of Children.—I have had occasion, during the years of my practice, to observe the teeth of a great many children, and I have been able to trace, in a large number of cases, almost the exact date of the acquiring of the eruptive disease by the markings of the enamel of some teeth. If a child, for instance, acquires measles at two and a half years of age, the probabilities will be, and are, that the central and lateral incisors, probably the cusps of the first bicuspid and the first molar will be very seriously affected, and they will be dwarfed and have a very peculiar shape.—*Dr. A. W. Harlan.*

Editorial.

Rubber Plates.

A PROMINENT prosthetic dentist says there are great objections to this material. When pressed for his objections he mentions four :

1st. *Its non-conductibility.* That all vegetable bases cause inflammation of the membrane. Perhaps my observation has not been sufficiently accurate ; but during a practice of thirty years we have not observed it. I have seen inflammation of the membrane under the rubber plates, as under gold plates. But we do not remember seeing it under either gold or rubber, where the mouth was kept clean. Of course, fermenting and decaying food will produce a rough, inflamed condition of the mouth ; but we have not attributed this to the plate. Sometimes severe suction will cause inflammation, and sometimes a misfit.

2d. *It produces absorption of the alveolus process.* Why ? How ? We know undue pressure of a plate on the ridge will cause its absorption ; but how does the rubber do it any more than gold or porcelain ? We do not believe it does. The gentleman referred to, says it is owing to undue heat. But where does undue heat come from ? It is not in the rubber, and it cannot come from the normal circulation in the underlying tissue. It must be caused by inflammation, and this must be caused by pressure, as it may from the pressure of any kind of a plate, and not from the nature of the rubber.

3d. *It is poisonous.* Well, perhaps it is. There are dentists who have persisted in this for more than thirty years. How many thousands are poisoned and yet don't know it ? We have yet to see the first case that could not be cured by a properly adjusted plate.

But 4th. He says, another serious objection is that rubber plates are too easily made, and therefore do not need the education, culture and skill a dentist should have. Well, that is bad. And yet we have seen those who could not make gold or porcelain plates of teeth, who could make rubber plates fit better, and work better, than could these learned dentists. As a quite popular dentist said to us : " I wish I could get rid of that cheap John in my neighborhood. He makes rubber plates of teeth better than I can, and does it for half the price."

Prof. G. W. Hubbard.

PROF. HUBBARD, whose portrait is our frontispiece for this month, is dean of Meharry Dental College, Nashville, Tenn. What would have been thought of a man who would have prophesied the possibility of such a college twenty-five years ago ? It is a college for qualifying ex-slaves and their progeny for the profession of dentistry. And it is not some little one-horse affair either, but a well established and endowed department of the Tennessee University. Prof. Hubbard honors himself by honoring the superintendency of this school. Thirty years ago we were ostracised for a while in Minnesota for teaching a colored man dentistry. He has since held a respectable position in the profession in Atlanta, Ga.

"Incompatibility" of Gold.—Dr. Bonwill writes me that a physician informs him that a case is reported in his Medical Society of a lady who had to have all her gold fillings—quite a number—removed, to restore her health. "She had been suffering continually from the dynamic effect of the gold." What nonsense !

But this case is no more preposterous than that of a homeopathic physician, who came to me to have some teeth filled. I had filled a few previously with gold. Said he, "Doctor, I shall have to have the rest of my teeth filled with some other metal than gold. I see that metal is incompatible with my constitution. You know, gold is our remedy for insanity ; this shows, it is its cause. Most people are not susceptible to its influence by merely having it in their mouth, but, I see, I am. I am confident it would make me crazy."

Counterfeiting a Compliment to the Original.—Men do not counterfeit worthless things. For the third time we have to record the attempt to imitate our Gold and Plalina Alloy. A few dentists get imposed on each time, and then it passes away. They come each time to the innocent dentist with, "You know we sell it cheaper than the doctor does, and we warrant it to be precisely the same thing;" but it is soon found so inferior that it does us no harm. This last fraud is the worst of all. The man has our label in fac simile, and he verbally "warrants it to be genuine," but the first mixing discovers the imposition. Instead of the smooth, velvety feel of the genuine, it is rough, and hard to mix; and even after thorough rubbing in mercury, it feels as tho there was sand in it. The dentist who sends us a sample says it crumbles in the tooth. It is a pity he could not succeed better than this, for he just as effectually exposes himself to the penalties of the criminal law; for, of course, if we can catch him we will cage him.

Bustles.—Heli Chatelain writing from Africa says: The negresses of all parts of Africa are blest with natural bustles, which enable them to carry heavier loads on their backs than the men can do on their heads, and this accounts for their carrying a heavy baby, even during their most arduous work. They have time, however, to improve on nature, for most of them wear artificial appendages, so much in vogue just now, among their sisters of civilized countries. If our ladies, like their sable sisters, would use that improvement as a saddle for their children, it would, no doubt, be far more to their credit than their present use. And yet, perhaps, with *our* ladies, such a use would not last long, they would soon want something still more fantastic; for all fashions with us are but the fancies of the hour, and the more foolish the appearance, the more imitative we seem to be.

A Russian Physician, named Portugaloff, declares that strychnine is an infallible cure for drunkenness, administered in subcutaneous injection. He asserts that the experience of physicians has shown this cure to be as rapid as it is certain. The effect of the strychnine solution is to change the craving for drink into positive aversion, and this change is affected in a day. After a treatment of eight or ten days a patient may be discharged. The strychnine is administered by dissolving one grain in two hundred drops of water, and injecting five drops of the solution every twenty-four hours. None but a skilful physician should experiment with it.

The most heavily endowed educational institutions in the United States are: Girard College, \$10,000,000; Columbia, \$5,000,000; Johns Hopkins, \$4,000,000; Princeton, \$3,500,000; and Havard, \$3,000,000.

The following are the largest sums given by individuals in the United States for educational purposes: Leland Stanford, \$20,000,000; Stephen Girard, \$8,000,000; Johns Hopkins, \$3,148,000; Asa Packer, \$3,000,000, to Lehigh University; Ezra Cornell, \$1,000,000; James G. Clark, \$1,000,000.

Pleasure and Pain.—A prominent difference between the sensations of pleasure and pain is the difference between gentleness and severity. A slight touch on the surface tickles, a violent one hurts; a slight pressure is agreeable, a severe one shocks. If gentle pressure of the blood in its normal circulation is pleasure, its severe pressure to overcome obstruction is pain. All pain is caused by excessive pressure on some nerve obstructing the free circulation of its mysterious fluid. Obstruction is pain, stagnation is death. Even inaction of a muscle or organ produces weakness, diminution, and final inanition.

"Man is his own star, and the soul that can
Render an honest and a perfect man,
Commands all light, all influence, all fate,
Nothing to him falls early or too late."

Crumbling Oxyphosphate.—If this plastic is properly manufactured, and the liquid is at all fresh, there is no excuse for this plastic crumbling, tho it be mixt quite stiffly. Of course, if the powder has been long exposed, or the fluid is old, it will not only crumble in mixing, but will not be durable. The fluid ought not to be more than three months old.

In the case of Samuel Kimball, sixteen years of age, who died in New York, the doctors say his system had been so thoroughly impregnated with nicotine, from cigaret smoking, that the heart was unable to perform its proper function.

Sig. Succi, who claims to have invented a liquid which enables a man to go without solid food, has reached London. Medical men on the continent have been examining his claims, and are astonished at the results of their investigations. Succi intends to show the Londoners how he can fast, and then come to this country.

Dr. Dio Lewis prescribes strong coffee, without milk or sugar, in nervous collapse, with surprising results. He says it is much better than wine. He has also alternated coffee and lemonade, with happy results.

An Englishman visiting Sweden, noticing their care for educating children who are taken from the streets and highways and placed in special schools, inquired if it was not costly. He received the suggestive answer: "Yes, it is costly; but not dear. We Swedes are not rich enough to let a child grow up in ignorance, misery, and crime, to become a scourge to society, as well as a disgrace to himself."

Alexander Graham Bell, inventor of the telephone, was in impecunious circumstances fifteen years ago, and people to whom he talked about his invention put him down as a visionary. The newspaper correspondents snubbed him almost as a whole; but one reporter took a liking to the friendless inventor, and said all the good things possible about his scheme. Bell gave him a block of telephone stock to show his gratitude, and the reporter is now a rich man.

An Austrian Photographer, named Verens, has succeeded in producing in. photographs some ranges of colors running from ruby red to light orange. He has caught also a vivid French blue. Green, brown, violet and the variations of blue have thus far eluded him. But scientific men, who have followed his experiments, predict that all colors are obtainable, and that a revolution in camera work is at hand

The Harbor at Port Said, at the eastern terminus of the Suez Canal, is formed by two piers, built of blocks of artificial stone, consisting of seven-eighths sand and one-eighth hydraulic lime. The concrete was poured into large wooden molds, and afterward the blocks hardened in the air. Many of these blocks weigh twenty tons each.

A discovery of vital importance has just been made by Dr. Chamberland, Pasteur's assistant, and Drs. Mennier and Cadiac, which proves that essence of cinnamon, when sprinkled in the room of a typhoid fever patient, kills the bacteria within twelve hours, and prevents the disease from spreading.

"Whatever of dignity, whatever of strength we have within us, will dignify and make strong the labors of our hands. Whatever noble fire is in our hearts will burn also in our work. Whatever purity is ours will chasten and exalt it; yet as we are, so we shall reap, for good or for ill, in the strengthening or defacing of whatever gifts have fallen to our lot."

Chicago College of Dental Surgery.

THE Eighth Annual Commencement of the Chicago College of Dental Surgery, dental department of Lake Forest University, was held at the Chicago Opera House May 7. Dr. T. W. Brophy, dean of the college, said that the exercises would be opened with an invocation by the Rev. Dr. E. P. Goodwin. After Dr. Goodwin's prayer and a musical number by the orchestra, Dr. Brophy read the annual report of the college, in which he showed its prosperous condition. From two graduates the first year, they had grown, until to-day, they had a class of sixty. They had become a department in Lake Forest University, and were proud of it. Then the degrees were conferred and the diplomas awarded by the faculty. William Lloyd Jones, D. D. S., was the class valedictorian. The orchestra played the class song, "Papa's Wee Girl," a new lullaby written and composed by F. A. Green, which was loudly applauded. The faculty address was delivered by Dr. A. W. Harlan. It was full of happy ideas. W. C. Roberts, D. D., LL. D., President of Lake Forest University, delivered the closing address of the afternoon.

The class of graduates was as follows :

Charles Edward Austin, B. S., Frederick Douglas Axton, James Down Banes, Daniel Wesley Bottorf, John Henry Chase, Joseph William Dostal, William Edward Emmons, L. D. S., Harvey Everett Follansbee, Allan Benjamin Fernald, Obe Edward Gibson, Linneaus Melbourn Goodearle, Earl Evlin Gould, Frank Albert Green, Edwin Grant Howard, Frank Sylvester Heer, Will Lloyd Jones, Richard Kempster, Halbert Eaton Kinney, Frank Kolar, George Wilson Toles, Ernest Lincoln Knapp, Frank Ambrose Lane, James Truman Lennington, Michael Leininger, Charles Beatty Magill, James Ralph Maguire, George Bruce Martin, Almon Green Moffett, James Doyle Moore, Joseph Gregory Pflaff, Guy M. Phelps, M. D., John James Pountain, Harry Monroe Prickett, John Willett Putnam, Frederick Kent Ream, Edmund Walter Russell, Otto August Ruthenberg, Charles Carver Ryan, Grant John Roberts, Fenwick Earl Salisbury, Frank Steece Schadel, James Adam Shoemaker, Albert Gustave Seeglitz, Jacob Hamlin Smyser, Melvin Wallington Swartz, Frederick Richard Suggitt, Lewis Solomon Tenny, Frederick Solomon Tinslar, Cornelius Nicholas Trompen, Rollin Brede Tuller, Orrin Thompson, James Lincoln Ubellar, John Quigley Waddell, Charles Herbert Waterhouse, M. D., Charles Edward White, Herbert Cameron West, William Henry Conrad Wiesler, Charles Augustus Whitenack, Edward Everett Williams, George Edwin Zinn, B. S.

In the evening the Alumni Association gave their eighth annual dinner at the Leland Hotel. Dr. Brophy presided. President W. C. Roberts, D. D., LL. D., responded to the first toast, "The University and College," with a happy address that gave general satisfaction. Dr. Edmund Noyes responded to the toast, "Dental Education of the Future." "The Graduate, and His Relation to Dental Literature," was responded to by Dr. A. W. Harlan. "Dental Legislation, Beneficial and Detrimental," was responded to by Dr. C. R. E. Koch. "The World's Exposition, and the Dentists of Chicago," was the subject to which Dr. Louis Ottofy responded. "The Profession Abroad" was responded to by Dr. J. A. Swasey. "The Alumni Association" fell to the lot of Dr. T. A. Broadbent. "The History of the Class of 1890" was the last toast, and was responded to by Dr. L. S. Tenny.

"The Class of '90" by Dr. F. D. Axton. "The Dental Protective Association" by Dr. J. N. Crouse. "Poem to the class of '91" by Dr. F. A. Green. Presentation of cane to Dr. N. D. Edmonds, by Dr. R. B. Fuller, on behalf of the class of 1890.

J. P. FRANTZ, M. D.,

DEAR SIR:—The Dental College of Howard University was established eight years ago, with a full corps of teachers. It is the oldest school in this city. Our Institution requires three courses of lectures; at present the class is small. Our faculty consists of Thomas B. Hood, A.M., M.D., Dean.

Chicago Dental Society.

AT the annual meeting of the Chicago Dental Society, held on Tuesday, April 1st, 1890, the following officers were elected for the ensuing year: President, C. N. Johnson; First Vice-President, C. H. Thayer; Second Vice-President, I. A. Freeman; Secretary, A. E. Baldwin; Corresponding Secretary, T. L. Gilmer; Treasurer, E. D. Swain; Librarian, A. W. Harlan; Geo. H. Cushing to succeed himself on the Executive Committee; C. F. Hartt, E. A. Royce, and S. B. Palmer, Board of Censors.

T. L. GILMER, Corresponding Secretary.

Institute of Dentists in Rio de Janeiro.—Of course the profession of dentistry must keep pace with all the other interests of Brazil. Here is the evidence. We congratulate our brethren in this new Republic on their forward movement. May great success attend them.

The Fourth Annual Meeting of the Colorado State Dental Association will be held in Denver, June 2 to 5, 1890. A cordial invitation is extended to the profession to be present.

CHAS. F. DODGE, Cor. Sec.

Leadville, Colo., April 14, 1890.

North Carolina Dental Association.—The Sixteenth Annual Meeting, will be held in Wilmington, fourth Thursday in June, and continue three days. There will be a full program of scientific work, including a large clinic. A cordial invitation is extended to the profession.

H. C. HERRING, Secretary.

Concord, N. C.

Meharry Dental Commencement.—The Fourth Annual Commencement of the School of Dentistry, of Meharry Medical Department, of Central Tennessee College, was held at Masonic Theatre, Nashville, Tenn., in connection with the Medical and Pharmaceutical Commencement of the same College. The graduates were D. G. Ferrill, of Texas, and S. J. Watkins, of Tenn. The address to the graduates was delivered by Rev. J. C. Hartzell, D. D., of Cincinnati. The Morrison Medal, given for excellence in mechanical and operative dentistry, was awarded to D. G. Ferrill.

The Twenty-fourth Annual Commencement of the Missouri Dental College was held at Memorial Hall, St. Louis, Thursday evening, March 13th, at 8 p. m. The annual address to the class was delivered by Prof. J. P. Bryson. The gold medal given by the St. Louis Dental Society was presented by Dr. Henry Fisher. The J. W. Wick prize, the S. S. White prize, and the St. Louis Dental Manufacturing Co. prize, by Prof. W. H. Eames. Number of matriculates for the session, seventy-nine. The degree of D. D. S. was conferred on the graduates by Prof. W. H. Eames.

A. H. FULLER, Secretary.

Royal College of Dental Surgeons, of Ontario.

THE closing exercises of the college were held in Normal School Hall, Toronto, on the evening of March 28th, 1890. Matriculated students in attendance during the session, 71. The valedictory address was delivered by Wm. Mills, L. D. S. The address to the graduating class by Dr. J. B. Willmott, Dean of the Faculty. A general address was given by Dr. W. Geo. Beers, of Montreal. H. T. Wood, President of the Board of Directors, presented the diploma of the college, conferring the title of L. D. S. on the following persons: G. P. Allen, J. A. Armstrong, D. Allen Black, Thos. Butler, Geo. F. Belden, M. F. Binkley, A. Stanley Burns, Ira Bower, Milton Cavanagh, J. F. W. Chittenden, Denton Dulmage, C. M. French, Benjamin Gollop, W. R. Hamilton, John H. Johnston, Oliver Martin, Archibald Milloy, Sylvester Moyer, William Mills, W. D. MacLaren, Walter F. McPhee, M. G. McElhinney, Alfred T. Pearson, William Revell, Wesley Richardson, M. W. Sparrow, James F. Simpson, W. H. Steele, W. J. Trotter, A. W. Thornton, F. W. Tweddle, J. J. Wisser; all of the Province of Ontario, Canada.

Miscellaneous.

Bromide of Lithia.

LITHIA has a desirable restraining action on any tendency to excessive destructive metamorphosis within the system. It prevents excessive phosphatic waste, thus sustaining the nervous system; it retards the tendency to rapid conversion of the nitrogenous food elements into urea, quite common among brain workers—business and professional men, especially, whose minds are weighed down with anxiety and care. It retards the excessive formation, also, of uric acid, and is thus of great value in a wide range of diseases. Combined with bromine, it is quite evident that the therapeutic effects of the remedy would be desirable. It is thus especially adapted to those cases of nervous excitement which follow nerve exhaustion, nervous irritation and insomnia from overwork, or in all nerve irritations that follow starved nerve conditions. The bromide of lithia may be given in all the conditions mentioned, and in those where the sodium or potassium salt are indicated, with excellent results. The dose is from five to thirty grains. In epilepsy its influence is mild, but effectual and permanent, even more satisfactory than the other bromides. In threatened apoplexy it will quickly soothe the patient and ward off an attack. In acute attacks of cerebral hyperemia, with intense headache and nervous excitement, it works admirably and quickly. In these cases it may be well to combine it with ergot in appropriate doses.

In all cases of overwork of the nervous system, followed by the long train of symptoms of nervous prostration, the bromide of lithia should be given in combination with the restorative agents and tonics.

Its field is a wide one, and should be better known and more often prescribed. —*Chicago Med. Times.*

A Paste that Will Adhere to Anything.

PROFESSOR ALEX. WINCHELL is credited with the invention of a cement that will stick to anything. Take two ounces of clear gum arabic, one and a half ounces of fine starch, and half an ounce of white sugar. Pulverize the gum arabic, and dissolve it in as much water as the laundress would use for the quantity of starch indicated. Dissolve the starch and sugar in the gum solution. Then cook the mixture in a vessel suspended in boiling water until the starch becomes clear. The cement should be as thick as tar, and kept so. It can be kept from spoiling by dropping in a lump of gum camphor, or a little oil of cloves or sassafras. This cement is very strong, indeed, and will stick perfectly to glazed surfaces, and is good to repair broken rocks, minerals, or fossils. The addition of a small amount of sulphate of aluminum will increase the effectiveness of the paste, besides helping to prevent decomposition. —*Nat. Drug.*

"Do Your Feet Smell?"—The *Cincinnati Lancet-Clinic* asks, What woman is there who enjoys a tobacco-smoker's breath, or a husband with bromidrosis or fetid feet? Yet Louis XIV, according to Fragon, suffered from the latter to such a degree that the worst courtesans in Paris fainted away at the first whiff of his perfumed feet. Henry IV had the same redolent perfume, but this did not prevent the diplomatic Queen Marguerite from occupying the same couch; and she pardoned her liege lord's legendary infidelities, as well as the loud smell of his royal toes. One day he was so redolent that Madame de Verneuil, one of his court favorites, said to him: "Sire, it is fortunate you are a king; without that your presence would not be tolerated—you stink worse than carrion." A woman may passionately love a humpback, a cripple, a legless, or an armless man, but she can never love a man with a bad breath, or smelling feet, and we may remark *en passant* that the German army have hereditary bromidrosis, and its soldiers are obliged by law to use a deodorant powder of salicylic acid on their odorous, tyrannical feet.

Reading the above in the *New York Medical Record*, reminded me of a Los Angeles applicant for a life insurance whom I examined a few weeks since. I asked him the usual routine question: "Do your feet swell?" when he turned red in the face and became very much embarrassed. After receiving some equivocating answer, I discovered that he understood me to ask: "Do your feet *smell*?" They did.

Erysipelas.—It is claimed that a mixture of campho-phenique, two parts, olive oil, one part, applied with camel's-hair brush, locally, in erysipelas, every three hours, produces marvelous results.

Oxidizing Dentifrice.

Gawalowski recommends the following as a very efficient dentifrice, innocuous to the enamel of the teeth :

Cuttle-fish bone	q. s.
Peroxide of hydrogen, 4 per cent.....	q. s.

Headache.—As a general rule, a throbbing headache, with tenderness and soreness of scalp, can best be relieved by hot applications. But, where the head feels full and “bursting,” if cold be applied to the head, and the heat to the neck and spine, the effect is most agreeable.

To Restore Gloss to a Silk Hat.—When a silk hat becomes wet, or, from other causes, has lost its smoothness and gloss, cleanse it carefully from all dust, then with an old silk handkerchief apply vaseline evenly, and smooth down with the same rag until it is dry, smooth, and glossy. This will make an old hat look about as good as new.—*Scientific American*.

Warts—Their Cure and Removal.—*To the Editor of the Scientific American.* In reading the *Scientific American* of February 8, I found a remedy for removing warts. I send you a remedy that we have found to be better and more simple. Take common washing soda and make a very strong solution. Apply it to the wart four or five times a day. We have tried this, and have never seen one wart that this would not remove in a few days and leave no soreness at all.—A. J. MOSLEY & SONS, West Philadelphia, Pa.

Cure for Hiccoughs.—The *Therapeutische Monatschrifte* publishes quite a curious means of curing an attack of hiccough, which had been used for the last twenty years by Dr. Pensky, with constant success. The patient stands upright and holds both arms horizontally out from his body; a second person standing in front of him in the same position, presses on the two radial arteries; finally, a third person gives at the same moment a glass of water to the patient, which is to be swallowed slowly without taking breath. The affect is instantaneous, and cannot be produced either by simple pressure on the radial arteries alone, or by drinking the glass of water.

Ingrowing Toenail.—Dr. Hofmann, of Erlangen, recommends a simple and painless method of treating this complaint. After the part is thoroughly cleansed and disinfected by sublimate solutions, a few drops of liq. ferr. perchl. are dropt on the affected spot. The edge of the nail is then gently raised. It is then dried. This is repeated on the second and third day. If suppuration takes place, the hardened scabs are to be removed with forceps, and the ferr. perchl. again applied. The nail soon becomes soft and brittle so that it can be easily removed, and without pain.—*Medical Press and Circular*.

Popular Fallacies.—It is a mistake to labor when you are not in a fit condition to do so. To think the more a person eats the healthier and stronger he will become. To go to bed late at night and rise at daybreak, and imagine that every hour taken from sleep is an hour gained. To imagine that if a little work or exercise is good, violent or prolonged exercise is better. To conclude that the smallest room in the house is large enough to sleep in. To eat as if you had only a minute to finish the meal in, or to eat without an appetite, or to continue after it has been satisfied, merely to gratify the taste. To believe that children can do as much work as grown people, and that the more hours they study the more they learn. To imagine that whatever remedy causes one to feel better (as alcoholic stimulants) is good for the system, without any regard to the after effects. To take off proper clothing out of season because you have become heated. To sleep exposed to a direct draught in any season. To think any nostrum or patent medicine is a specific for all diseases flesh is heir to.—*American Analyst*.

To Cure Bromidrosis.—Sufferers from fetid sweating will be glad of the following formule—for ill-smelling feet: after carefully washing the feet, which should be done night and morning, apply an alcoholic lotion, methylated spirit and water, and then turning the socks inside out powder them thoroughly with the following: Talc 40 parts, bismuth subnitrate 45 parts, permanganate of potassium 13 parts, and salicylate of soda 2 parts. For perspiration from the axille, etc., powdered rice 60 parts, subnitrate bismuth 25 parts, permanganate of potassium 10 parts, powdered talc 5 parts.

Courtesy to Elders.—Our American people may not lack in depth of feeling, but they surely do fall short in the expression of feeling. This is most noticed in the lack of the little deferences, the tender courtesies, the free, spontaneous signs of affection that render homes so satisfactory and so full of contentment. To give to the white-haired father or mother not only respect but confidence, to tell the joke and the secret to them first, to accord them cordially the central place in the merry-making, may seem trivial matters, yet they are not trivial to those who, in the twilight of life, begin to think they are useless and forgotten, and to question whether they shall be missed when they shall go out into the nearing night. Courtesy is but a little thing, and costs nothing, and if it is due to any one, it is surely to the aged among us, especially when these are our parents.—*Selected.*

“Those of fifty years of age have probably lived in the most important and intellectually progressive period of human history. Within this half-century the following inventions and discoveries have either been placed before the world or elaborated: Ocean steamships, railways, street tramways, telegraph lines, ocean cables, telephone, phonograph, photography and a score of new methods of picture-making, aniline colors, kerosene oil, electric lights, steam fire engines, chemical fire extinguishers; anesthetics and painless surgery; gun-cotton, nitro-glycerine, dynamite, and a host of other explosives; aluminium, magnesium, and other new metals; electro-plating, spectrum analysis, and the spectroscope; audiphone, pneumatic tubes, electric motors, electric railways, electric bells, type-writers, cheap postal system, steam heating, hydraulic elevators, vestibule cars, and cantilever bridges. These are only a few out of a multitude. All positive knowledge of the physical constitution of the planetary and stellar worlds has also been attained within this period.”—*London Iron.*

Corns.—A lady says the following simple remedy has given her such complete relief that she wishes every sufferer of corns to know of it: Soak the feet in warm water a long while, and take off as much of the hard skin as possible; then put around the toe a strip of surgeon's adhesive plaster, sufficiently wide to entirely cover the corn. Wear the plaster till it comes off or wears out, and then repeat the soaking, and put on another plaster. The plaster can be bought at any drug store, and five cents' worth will last a long time. It must be warmed before applying to the corn, and it will then adhere very firmly.

In-growing toe-nail may be relieved at once, and cured in a few weeks, by applying, twice daily, a solution of one ounce of fresh tannic acid in six drams of water, dissolved by gentle heat. Pain is quickly subdued, and the nail soon attains its normal length and breadth. A little lint may be introduced under the ingrowing edge, if necessary.

Borac acid possesses valuable antiseptic and germicidal properties, and is now used extensively by aurists in the treatment of purulent inflammation of the ear. Its power to arrest fermentation and putrefaction has been repeatedly demonstrated. It is used in the treatment of aphthous ulcerations of the mouth and fauces, and is of great value in cases of catarrh and follicular laryngitis, rapidly correcting the intense fetor of the breath when properly brought to bear on the diseased parts. This may be accomplished by the inhalation of the vaporized solution. As a mouth-wash and gargle it is employed in a solution of about twenty grains to the ounce of water.—*Dr. L. G. Noel.*

Burns.—A celebrated German remedy for burns is made as follows: “Take fifteen ounces of the best white glue, break into small bits, and soak in a quart of water until soft. Then dissolve by means of a water bath, and add two ounces of glycerine and six drams of carbolic acid; continue the heat till thoroughly dissolved. On cooling this hardens to an elastic mass, covered with a shining, parchment-like skin, and may be kept for any length of time. When required for use it is placed for a few minutes in a water bath till sufficiently liquid, and applied by means of a broad brush. It forms in about two minutes a shining, smooth, flexible, and nearly transparent skin.

A fine furniture polish is made by the use of the following recipe: Alcohol, half pint; resin, half an ounce; gum shellac, half an ounce; a few drops of aniline brown. Let stand over night, and add three gills of raw linseed oil and half a pint of spirits of turpentine. Shake well before using. Put on with cotton flannel, and rub dry with another cloth.